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THE

EDINBURGH MEDICAL JOURNAL.

Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*On the Formation of an Artificial Ureter.* By Professor VON NUSSBAUM, of Munich. Translated from the German[1] by THOMAS MARSHALL, M.A., Student in Medicine.

MORE than a thousand ovariotomies had already been performed, when, in 1869, Herr Hofrath Dr Simon published the fact that, in one such operation, a ureter had at the same time been cut away. The case was one in which, besides the ovaries, a great part of the uterus had to be removed. The left ureter was the one injured, and the urine of the left kidney flowed thereafter through the canal of the uterine cervix and the vagina, and also through an abdominal fistula, which had formed in the cicatrix of the incision. Although now freed from her tumour, yet the continual escape of urine not only made the poor patient quite incapable of attending to her duties, but also caused her so much suffering, by reason of the stink and wetness, that Hofrath Simon applied himself with admirable perseverance to the task of curing this affliction.

As an attempt to close the fistulæ did not succeed, Simon, after most careful deliberation, proceeded to the removal of the left kidney, quite sound though it was.

Although this undertaking seems, at the first glance, an extremely bold one, we see its justification when we consider the well-devised and numerous experiments which Simon, with his inimitable perseverance, made with this end in view. In more than thirty dogs he removed one kidney in order to learn whether the

[1] Ærztliches Intelligenz Blatt., 1876. Nr. 7 u. 8. Munich: J. A. Finsterlin.

remaining kidney would take upon itself a double function, and, if so, with what speed and completeness, and also what dangers this operation might be attended with.

After such extended preliminary investigations, and after very encouraging results had been obtained, no one could any longer regard it as a foolhardy act, when Simon removed one healthy kidney in order to put an end to the constant annoyance caused by the trickling away of the urine. On the contrary, the whole learned world has been unable to withhold its admiration of this operation, as ingenious in its plan as it was beautiful in its execution.

Simon's patient was, in fact, completely cured after she had overcome certain serious symptoms, which lasted only for a short time. The remaining kidney immediately undertook the double function, and thus every doubt was removed.

On performing last year my ninety-sixth ovariotomy, I experienced a misfortune of the same sort, whose history and successful cure I will now briefly relate, since I succeeded in accomplishing the cure in a manner both simple and safe, but such as, very probably, would have been hardly practicable in Simon's case.

Mrs Theresa Holler, aged 47 years, wife of a citizen of Munich, had suffered for more than fifteen years from ovarian cystic disease. Her family medical attendant, Herr Prof. Dr Amann, had omitted no reasonable effort to check the growth of the tumour, and to maintain the strength of the patient as much as possible; but it was especially desirable that this tumour should be radically dealt with, because fits of an epileptic type seemed to be intimately dependent upon it. The patient had, indeed, no convulsions, but she struck out unconsciously around her, tore everything, etc.

In the summer of 1875, the tumour was increasing so rapidly that Prof. Amann consulted me about ovariotomy, which I, in consideration of the circumstances, urgently recommended. The brave lady was at once prepared to submit to the operation, and, on the 27th July 1875, we performed it.

My friend Staff-Surgeon Dr Bratsch attended, as usual, to the administration of the chloroform; Prof. Dr Amann, and my assistants, Dr Halm and Dr Lindpaintner, acted as my principal assistants, and the rest of my staff attended to the holding of the patient, the washing of the sponges in 1–20 carbolic solution, and to Lister's spray—for I performed the operation rigorously according to Lister's method.

After anæsthesia had been sufficiently established, our hands and the patient's abdomen washed with 1–20 carbolic lotion, the instruments and sponges laid in a quantity of the same lotion, and the spray begun, I drew off the urine with a catheter, and, between the symphysis and the navel, made an incision of about

10 inches (25 centimetres) in length. I made the incision thus long because I had diagnosed a multilocular ovarian tumour, interspersed with numerous solid masses.

The small superficial vessels of the abdomen that were bleeding were tied with catgut, and the peritoneum was then divided on a director. Some peritoneal fluid escaped, and the tumour immediately forced itself vigorously into the wound.

I caused the patient to be laid on her side, and tried, with the trocar, to empty the larger cysts, in which attempt I only partially succeeded, as their contents were to a large extent gelatinous.

As soon as the tumour had by this means become somewhat diminished and more flaccid, I caused it to be fixed in the position in which it then was with forceps, and passed in my right hand between the tumour and the abdominal wall, in order to explore all the adhesions.

The tumour was adherent only in two places. In the neighbourhood of the liver there was a broad omental adhesion, and the mass was also in intimate connexion with the left side of the elongated uterus.

After this examination, I proceeded to empty several other cysts, opening many of them with the knife, and clearing out their thick contents with the hand. At length I was able to draw out the diminished tumour at the wound in the abdomen, and tie with catgut and cut off the omental adhesion. The most difficult part, however, was the separation from the uterus. The pedicle and the adhesion with the right side of the uterus formed a mass of the thickness of the hand, fleshy, and evidently very vascular. I endeavoured to separate the whole into two parts, and, having passed an iron wire round the pedicle, I fastened the wire to a small ecraseur, and cut away the pedicle with the knife after the ecraseur was firmly tightened. It still remained to detach the broad adhesion to the uterus, and this was so intimate that I was doubtful whether I had better separate the tumour from the uterus, or whether I should take away along with it a piece of the adherent uterus.

Fortunately I resolved upon the former course, for it proved to be quite easy to detach the tumour from the uterus with the finger. Only the thickened peritoneum, which was continued from the one to the other, did not yield to this treatment. The large area of the uterus laid bare by this separation bled, however, pretty freely, although there were no individual vessels to seize with the forceps.

As I had not yet completely divided the peritoneum between the uterus and the tumour, I dissected up a portion of about half the size of the hand from the tumour, and stitched it with catgut over the bleeding surface of the uterus, which instantly checked the parenchymatous hæmorrhage.

The next thing to be done was the cleaning of the peritoneum.

The larger blood-clots I removed with my hand, the smaller with clean sponges. This act demands always the greatest care, for upon it chiefly depends the result.

All the blood was now cleared away; only the intestines were still somewhat bloody. I therefore poured some carbolic lotion on the intestines, and sponged it out again with clean sponges. I then wrapped up the pedicle of the ovary grasped by the ecraseur, along with five drainage-tubes about four inches long, in a piece of oiled silk well washed with carbolic lotion, brought the whole bundle into the lowest angle of the wound, and closed the wound with three silver sutures of relaxation, and with twenty fine sutures of antiseptic silk.

The other ends of the drainage-tubes lay in the deepest angles, beside the bladder, uterus, and rectum.

In order to satisfy myself fully that the parts were well cleansed, I threw in a few syringefuls of carbolic solution through the drainage-tubes. The injection flowed back again pure and free from blood. I then placed over the whole wound a piece of oiled silk washed with carbolic lotion, four plies of antiseptic gauze moistened with carbolic lotion, a large bath-sponge well washed out in carbolic lotion, eight plies of antiseptic gauze, a piece of Mackintosh, again a layer of dry gauze; and the spray being suspended, I made all fast with 6½ yards (6 metres) of antiseptic gauze bandage of the breadth of the hand. The dressing, of course, extended over the whole region of the abdomen, and nowhere allowed air to reach the wound without passing the antiseptic covering. To make doubly sure, I stuffed all the corners and narrow spaces which the gauze bandage left with salicylic wadding.

Lest I should be tedious, I mention only these particulars of the case, viz., that no unfavourable symptoms ever showed themselves; the highest temperature (101·48° F., 38·6° C.) was reached on the fourth day; no vomiting, no abdominal pain or distension ever ensued. The dressing was changed as often as it seemed to be saturated—of course, always under the spray; at first twice a day, and after a fortnight once a day. The drainage-tubes were always drawn out and washed clean in 1-20 carbolic solution and again introduced.

The fine silk sutures were removed on the eighth day, the silver wire sutures on the fourteenth day. The ecraseur I took away on the eleventh day with great difficulty; some sound tissue had got drawn in with the wire into the sheath, and necessitated a disagreeable exercise of force in withdrawing the instrument.

However, all went well; but it was a striking fact that, in spite of the success of the operation, only a small quantity of urine could at any time be drawn off with the catheter in Mrs Holler's case, whereas in other successful cases the normal quantities of urine were passed from the first.

There were passed by this patient in twenty-four hours only about 7 drs. to $1\frac{1}{4}$ oz. (400 bis 600 cc.) of urine; while on the other hand the discharge from the open part of the wound in the abdomen was unusually copious and clear, so that I at once surmised that there might be a lesion of the bladder.

After most ovariotomies, in which my present practice is always to place a bundle of drainage-tubes in the deepest part of the pelvis, allowing them to project at the lower corner of the wound, I observe, that only in the first 24-48 hours does much discharge come away, after which only a few drops appear.

(I add here, by way of remark, this conviction which forces itself upon me, that the wider we leave the abdomen open, the less is the danger that attends the operation. The discharge should, in fact, have an entirely unimpeded escape.)

I now at once proceeded to a careful examination of the discharge from the wound, and found to my horror that there was a great quantity of urine mixed with it. The question now was, what had been injured by the operation? Any one who had seen how firmly the tumour was attached in the true pelvis, would have regarded any injury as possible. First of all, I examined the bladder.

After I had drawn off the urine with the catheter, I injected 4 ounces of dark-blue diluted tincture of litmus, and watched whether or not the discharge from the wound would become tinged. The bladder was, however, uninjured, the blue injection had communicated no trace of colour to the discharge; so that it was quite clear that we had before us a misfortune very similar to that of Simon. It was evident that the right ureter on the right side of the uterus had become intimately adherent to the ovarian tumour, and had been extirpated along with it.

The further details of the convalescence offer nothing more of interest.

Mrs Holler recovered rapidly, but a fistulous opening in the abdomen of the size of an ordinary lead pencil remained, and shed half of the normal quantity of urine, thus causing such grievous annoyance to the good lady that although she was now freed from her tumour, whose weight was more than 36 lbs. ($16\frac{1}{2}$ kilo.), and, as a consequence, her quasi-epileptic attacks had been reduced to spasms so slight as to be almost imperceptible, and lasting no more than a minute, yet she would almost have preferred her former condition. The perpetual wetness of the lower half of her body, which no apparatus prevented, and the abominable urinous odour, which banished the well-known and highly respected lady from society, soon became intolerable to her.

Although I had before repeatedly read through all the communications published by Hofrath Simon, yet I studied them all from beginning to end once more, because Mrs Holler most urgently besought our speedy help; but I was unwilling to bring on myself

any reproach from rashness. The trouble continued the same as ever; any spontaneous cure or improvement was not to be thought of.

There remained then these three ways of procuring relief:—

(1.) Closure of the orifice of the ureter, and its obliteration followed by shrivelling (atrophy) of the right kidney.

(2.) Formation of an artificial ureter, which should make a way again for the urine into the bladder.

(3.) Extirpation of the right kidney according to Simon's precedent.

In No. 1, I had not the least confidence. With the copious and vehement secretion going on, I believe that a closure of the ureter would have a very serious result, uræmic symptoms would hardly fail soon to show themselves, and most probably after a severe and short illness death would supervene.

Less dangerous seemed to me the extirpation of the right kidney. The communications made by Simon, and the advices he gives, are in a high degree reassuring and encouraging; but this operation must, after all, be regarded as a rough interference with the organic economy; and a task is required of the remaining kidney to which it is not always adequate; and the operation itself must be pronounced a very dangerous one.

Mrs Holler was already 47 years old, and had been of late very much reduced, so that I could not expect a successful result from so severe an operation. But, above all, I was guided by the thought that we should always prefer to every other the way pre-indicated by nature, and I brought myself to the resolution: *to lead again into the bladder, by the shortest possible way, the urine at present flowing out at the abdominal fistula from the right kidney.*

For this there presented themselves two possible methods: either to seek for the divided portions of the right ureter, and possibly, after artificial dilatation of the lower, and invagination of the upper, portion, to unite them; or to form an artificial ureter.

The former would have been unquestionably the more elegant, but it was also the more unlikely method; nevertheless I attempted it, because the attempt could, at all events, do no harm, but must in any case have the advantage that, by this means, I should acquaint myself accurately with the existing relations.

During two entire days I enlarged the abdominal fistula with Laminaria-tent, so that I could easily penetrate with my left forefinger into the interior, and find the urine-reservoir, which was situated to the right of the uterus, about as big as a pigeon's egg, and the ureter opening into it.

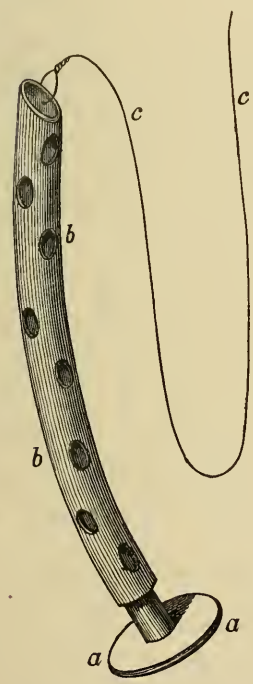
With the assistance of my colleagues Dr Halm and Dr Lindpaintner, I undertook then, on the third day (10th Nov. 1875), the following operation:—

After Mrs Holler had been rendered insensible with chloroform, and had been put into the position for lithotomy, I incised

the urethra upwards and downwards with scissors, and dilated it by slow introduction of the various different-sized bougies of Simon. When I had withdrawn the fifth one, it was very easy for me to introduce my forefinger, and I was enabled, by passing the middle finger into the vagina, to penetrate to a great depth.

In January 1861 I had published a method of cutting for stone in the female (Lithotomy with Lithotripsy), and found that a cutting operation on the urethra gives very beautiful results. I had broken very large stones into several pieces and extracted them. The women recovered in a few days. The operation has been performed also by many of my colleagues according to this method. Yet in spite of these encouraging experiences, I preferred enlarging the urethra bloodlessly with Simon's bougies.

I readily found the left sound ureter, but not so that on the right side. This seemed after the loss of its function to have also lost its prominence, and I immediately became convinced that I must make an artificial ureter. Further, I passed my left forefinger as deep as possible into the abdominal fistula, and my right forefinger into the bladder, still the two finger-tips failed to touch each other; but if, instead of the right forefinger, I introduced a male catheter into the bladder, then it was not difficult to feel it with the left forefinger which was in the urine-reservoir, only I required to press the point of the catheter well upwards. There was an interval of from 1 to 1½ inch (3 to 4 centimetres) separating catheter and finger-tip from each other, unless the bladder was pushed forcibly upwards. It appeared to me very favourable that the urine-reservoir lay so high, as I was thereby the more encouraged to hope that on forming an artificial ureter I should obtain a ready flow into the bladder, having the powerful law of gravitation in my favour. Every fear was by this means precluded either of a regurgitation of the urine from the bladder towards the reservoir, or of an accumulation in the reservoir.



a a, Small glass tube, with rim bent out.
b b, Caoutchouc drainage-tube.
c c, Silver wire.

As I had already prepared myself for various emergencies, I could immediately proceed to the formation of an artificial ureter.

I had provided myself for this purpose with a drainage-tube of 2¾ inches (7 centimetres) in length, which is represented in its proper dimensions in the accompanying figure.

At one end of the drainage-tube and firmly fixed within it was the small glass tube *a a*, whose rim I had previously bent out very wide in the blow-pipe flame; at the other end a long silver wire *c c* was fastened.

I now introduced a curved trocar through the urethra, and thrust it through the bladder, causing the instrument to pierce it about the part in the neighbourhood of which I conjectured that the former aperture of the ureter was. After I had pierced the posterior wall of the bladder, I directed the point of the trocar sharply upwards towards the tip of my left forefinger, which I kept firmly pressed down through the abdominal fistula into the urine-reservoir beside the uterus. When the point of the trocar fairly met my left finger-tip, I forcibly pressed the whole instrument with my right hand, so that the trocar remained half in the reservoir and half in the bladder. I then drew out the stilette, passed a long piece of whalebone through the silver canula, then withdrew the canula also, so that only the whalebone now remained, to whose lower extremity I fastened the silver wire *c c*.

I now drew out in the upward direction the whalebone, to which the silver wire, drainage-tube, and small glass tube were attached, until my right forefinger introduced into the bladder could feel that the whole had been drawn through the posterior wall of the bladder, and only the flange of the glass tube *a a* remained in the bladder. What I had in view in this was, to allow as little as possible of a foreign body to lie in the bladder, as Mrs Holler was exceptionally sensitive. My object in making the flange so large was to prevent it slipping through the punctured opening in the wall of the bladder.

The situation, therefore, was as follows:—The flange of the glass tube *a a* lay in the cavity of the bladder; the drainage-tube *b b* acted as artificial ureter, piercing the wall of the bladder and the tissue between the bladder and the urine-reservoir, extending even into the reservoir itself and into a part of the track of the fistula; the upper part of the track of the fistula contained, however, nothing but the silver wire *c c*, whose projecting part hanging out of the abdominal fistula I fixed down with sticking-plaster on one side of the abdominal wall.

I now made several injections above at the abdominal fistula, of diluted dark blue tincture of litmus, which immediately flowed off through the bladder, thus giving evidence that the drainage-tube was working properly as a ureter. After having washed and syringed out every part with carbolic lotion, and laid moist boracic lint on the fistula and covered it with gutta-percha, we put Mrs Holler to bed.

She awoke slowly, complained of pain, and of continual desire to make water, and experienced a general sense of uneasiness. In spite of the great care with which I had performed the dilatation

of the urethra there remained for several days a complete incontinence, which, however, was no argument against the method, because, in this patient, there was a great tendency to incontinence, and because the desire to make water was excessive.

One great consolation was, that the fever kept within moderate bounds, the temperature never rising above 102° F., and that plainly the discharge of the urine by the abdominal fistula became less, although, to be sure, not to such a degree as I had expected, for I had hoped that all the urine would at once gravitate into the bladder, and that not another drop would flow away through the fistula.

After three days the incontinence ceased, but the desire to micturate was still so strong that urine had to be discharged every eight to ten minutes. Injections of morphia, however, which were quite indispensable, often produced some abatement of this symptom.

Mrs Holler, who always had eaten very little, could not now be tempted to eat at all, and only with difficulty drank some beer and now and again took an egg. Constant attacks, moreover, of diarrhœa tormented her, which could not be checked even with injections of starch and opium in large doses. On the fifth day I had a very disagreeable surprise: Mrs Holler lay again as wet in bed as ever, all the urine of the right kidney manifestly ran away again through the fistula. I examined my artificial ureter, and found that the glass tube, in spite of its wide flange, had slipped through the wall of the bladder, and the artificial opening into the bladder had at once become useless. Although the track of the fistula, in whose upper half the thin silver wire alone was laid, had already become very much contracted, yet I could, by gentle pulling on the silver wire, draw out the whole apparatus upwards.

I was now thrown back to my original position; only Mrs Holler was much weaker than before. I gave her chloroform again at once, in order to be able to make a careful examination, and not too hastily give up a plan which lay so near accomplishment. When the chloroform had taken effect, I cleaned the fistula by repeatedly syringing it out, and also cleansed the bladder in the same way. They were full of foul stinking pus, and the urine also had got into a very bad condition.

I then injected again some blue-coloured water into the abdominal fistula, and suddenly I had the joy of seeing the blue colour in the bladder. My artificial channel was therefore not yet lost, but had only been blocked by flaky secretion.

With much difficulty I at once introduced a drainage-tube again with the help of an elastic catheter.

This second drainage-tube was 7⅞ inches long (20 centimetres), so as to pass through the entire bladder and out at the urethra, where it hung into a urine-glass. I had again attached to the upper end of the drainage-tube a silver wire which lay in the

track of the fistula, and was secured with sticking-plaster near the orifice out of which it hung. The greater difficulty of the operation this time was caused by the fact that the canal was much narrower, admitting the left forefinger with great difficulty.

Mrs Holler awoke very unwell, and with an increased desire to pass urine, which rendered larger doses of morphia indispensable; the thermometer also rose higher than before (102·92°–103·46° F.). But the mechanical action of the apparatus was remarkably satisfactory, an extremely small amount of urine now coming out by the fistula, and almost the whole passing by the bladder into the urine-glass. The urine continued to be offensively ammoniacal and flaky. On the second day the morphia injection was repeated, and produced a somewhat deeper sleep. When I saw the patient again, this long drainage-tube also had, to my great astonishment, slipped back, having passed upwards through the bladder, and through the urine-reservoir and the fistula, so that it now lay loose on the abdomen. Mrs Holler assured me that she had never pulled the silver wire, but that she had, from the very first hour, been conscious of a tendency in the drainage-tube to make its way upwards. As she lay much less wet in bed than usual, and as a blue-coloured injection into the fistula convinced me that my artificially-constructed passage was still open, I did not insert a drainage-tube again, but hoped that the continuous flow of urine would compel the artificial passage to remain open.

It turned out, in short, just as I had expected. The urine of the right kidney now also flowed with great speed into the bladder, only a few drops still passing by the abdominal fistula. The renewed incontinency of the urethra, as well as the purulent and offensive condition of the urine, by degrees entirely disappeared. The fever and the desire to pass urine also ceased; the tenderness in the region of the bladder, which, however, had never been excessive, likewise disappeared, so that the condition of the patient was a very gratifying one. The obstinate diarrhœa, however, offered resistance for some time longer to every kind of treatment, and had not, in fact, entirely abated when Mrs Holler, three weeks after, left my establishment.

The amount of urine passed daily through the urethra was now perfectly normal (55, 61, 67 c. inches—900, 1000, 1100 cc.) The condition of the urine also left nothing more to be desired, nor was there any indication of the occurrence of accumulation. This was, no doubt, rendered impossible by the rapid flow which the artificially-formed ureter induced. The urine-reservoir lay, as I have already mentioned, so high up beside the uterus, and the orifice of my artificial ureter was so deep down in the bladder, that the flow of the urine took an almost perpendicular direction, and left no room to apprehend damming of the stream or accumulation.

After Mrs Holler had been fourteen days at her own home, I visited her again, and found her well, free from diarrhœa, and con-

tented; but some drops of urine still continued to pass by the abdominal fistula, although it had become narrowed to an extraordinary degree. I took a redhot knitting-needle and cauterized the narrow canal in the abdominal wall, and when, in the course of a few days, the eschar came away, I drew the edges of the fistula firmly together with sticking-plaster, when the opening forthwith healed; so that I was able to dismiss Mrs Holler from my hands contented and well, perfectly cured of ovarian tumour and abdominal urinary fistula. Her health continued to improve, for her strength also rapidly recovered; on the abdomen there is now no longer the slightest irritation, and not the smallest disturbance observable in the urinary secretion.

Article II.—*Case of Extra-Uterine Fœtation, successfully treated by Abdominal Section.* By John A. Macdougall, M.D., F.R.C.S., Carlisle.

(*Communicated to the Obstetrical Society of Edinburgh by* Dr Matthews Duncan, 10*th May*.)

The interest which necessarily attaches to every case of misplaced fœtation, and to its issue, leads me to bring under your notice the following case:—

Elizabeth Fell, æt. 38, was admitted into the Cumberland Infirmary on the 8th of December last. For many months she had had a swelling of the abdomen, but so slight was the uneasiness occasioned by it, that she thought comparatively little of it. Some weeks before her admission, and while closely engaged in the long-continued and anxious nursing of a sick child, she began to experience sharp oft-recurring pain in the lower part of the abdomen, and with this came much physical weakness. Gradually, the pain became more persistent, vomiting set in, and she was at length so ill that she was compelled to remain in bed. On admission to the Hospital, she presented marked symptoms of peritonitis.

Her history is this: She is married, and is the mother of eight children, all of whom were born at term. Her pregnancies had always been easy, her labours natural, and her recoveries safe and speedy.

Early in January of 1874, she menstruated, and shortly afterwards had symptoms which led her to believe that she was again pregnant. In due course came swelling of the abdomen, but this she noticed appeared first on the left side. Fœtal movements began early, were soon very pronounced, and became latterly so violent that she quite dreaded them. At mid-term, and then only, occurred a bloody flux. This she regarded as an unexpected menstrual period, although she states that it was more severe than

usual, and that it ended in the passing of a considerable quantity of blood-clot. As in times past, so now, her breasts enlarged and filled with milk.

With these exceptions, the misplaced swelling, the early and very pronounced character of the fœtal movements, and once the appearance of sanguinolent discharge, the progress of her pregnancy was apparently a most favourable one, and at no time had she marked abdominal pain.

One evening in the end of August, after a laborious day at the wash-tub, she was seized with vomiting. This continued for some time, labour pains supervened, and her medical attendant was summoned. He examined her, but declared her labour to be a false one. After sixteen hours of much suffering, she had two strong expulsive pains, coincident with which she had bloody discharge from the vagina. Then all suffering ceased, and so did fœtal movement. For the four following days she felt out of sorts, but was always able to move about. Her doctor, who had visited her repeatedly, now told her "that no child would be born, but that gradually the abdominal swelling would disappear." So far, his words came true; the swelling did become less, and her breasts, for many days fully distended with milk, became flaccid. Menstruation reappeared in the end of September, and all signs of approaching childbed passed away. From the date of the spurious labour until the latter end of November 1875—fifteen calendar months—she went about discharging her usual household duties without complaint of any kind. Then came a time when mental and physical strain was great, exhaustion followed it—exhaustion which had no doubt much to do with the subsequent progress of her case.

8th December.—Examination showed a tumour reaching exactly to the height of the umbilicus, of somewhat irregular form and consistence, giving no evidence of fluctuation, and everywhere dull on percussion. Lightly applied pressure gave rise to much pain, and elicited readily a feeling of crepitation in the abdominal parietes over the upper half of the tumour. The os uteri was placed high in the pelvis, was situated considerably to the right of the mesial line, and was quite undeveloped. In the posterior cul-de-sac there was comparatively little fulness, and the tumour could be felt most distinctly through the upper part of the vaginal wall on the left side. The body of the uterus was not much enlarged—not more than an inch.

The diagnosis was "a suppurating extra-uterine cyst," probably connected with the left ovary. The presence of a fœtid discharge from the vagina led to the belief that already the pus had found a vent.

Her general condition was a somewhat anxious one. Quick pulse; exalted temperature, 102°; and much pain and tenderness of the abdomen.

Poultices were applied; opium was given freely, and the vagina was washed out frequently with a warm carbolic lotion.

Under this treatment she rapidly improved; her pulse and temperature fell, and the pain and tenderness disappeared. The feeling of crepitation, however, still remained.

That the removal of the decomposing fœtus was the right thing to do, was certain; but it seemed well to wait in the hope that by the formation of an external fistula we might yet have a clearer indication for prudent interference. The steady and continued improvement of the patient not only warranted, but pointedly demanded this.

After three weeks' residence in hospital, she had so far recovered, that, despite all advice, she insisted upon going home.

Six weeks passed, and I received a message to visit her, "as the growth had burst." When I did so, I found her much changed. She had lost flesh sadly, and had such a pulse and such a temperature that the presence of septicæmia was readily recognised.

At the umbilicus a small opening existed, through which a fine probe could be passed, and which upon pressure gave exit to a few drops of pus.

She was readmitted to the Infirmary, and on the 13th of February, in the presence of the hospital staff, I proceeded to open the cyst. Ether was administered, and the bladder and rectum were emptied.

Beginning the incision just below the fistulous opening at the umbilicus, I carried it down for about four inches in the centre line. Dissecting carefully down upon the cyst, I opened it at the upper extremity of the wound, and finding, on introducing my finger, that the wall was firmly adherent to the parietes, I laid it open to the full extent of the superficial incision. Much sickly smelling pus escaped, and, on gently introducing my hand, I found the body of the fœtus greatly disintegrated. Many of the bones, notably those of the cranial vault, were lying loose in the cavity, and were easily removed by means of a lithotomy forceps. Fortunately the lower extremities remained intact, so, seizing the feet, I turned and readily removed the mass. This, when examined, proved the remains of what had been a well-developed male child, and was estimated to weigh four pounds.

All trace of the placenta had gone—a peculiar nodulated condition of the anterior wall of the cyst alone marked its site. The interior of the cyst was thoroughly sponged out with a weak solution of iodine, and a careful examination made to ascertain if any rent had taken place. This led to the discovery of a funnel-shaped opening at the lower end, which evidently communicated by means of a short tube with the body of the uterus. A small-sized catheter passed gently along this found its way into the vagina through the os uteri. By means of this opening a drainage-tube was carried from below into the cavity of the cyst. Two deep silver sutures were then inserted, so as to bring together the wound

in its entire depth, and two passed superficially through the skin; a firm pad and bandage were applied, and an opiate suppository administered.

From the operation she rallied quickly and well, and her progress towards recovery was steady and uninterrupted. The high and very irregular temperature soon became normal, and her general condition rapidly improved. An occasional dose of opium was given her. Steady pressure was maintained over the cyst by means of an abdominal pad, and through the drainage-tube carbolized solutions were injected daily.

14th March.—As the discharge through the drainage-tube had all but ceased, it was withdrawn to-day.

24th March.—The external wound is quite healed, and the track through which the drainage-tube was carried has evidently closed; all discharge has ceased.

26th March.—She was able to be out of bed to-day, and looks, as she expresses herself, as feeling "very well."

Of all accidents connected with the period of utero-gestation, none is attended with more anxiety than that of misplaced pregnancy. Too often, quite inexplicable as to its causation, its progress is attended with much severe suffering—a suffering terminating but too frequently within few weeks in a rapid and painful death. At any time during her childbearing period may a woman become the subject of it, though, curiously enough, those to whom a first pregnancy has come after years of married life seem the most liable. Its early, nay, even its later symptoms, may be very vague, as the case just narrated shows. This woman wanted completely the very train one expects, markedly the sudden cramping pain in the abdomen, recurring often and without appreciable cause, and attended generally with more or less hæmorrhage. With the exceptions I have already drawn attention to, the progress of her pregnancy was calm and undisturbed—so calm, that a woman who had already borne eight children thought there was nothing amiss. Such a history rather bears out the belief I entertain, that the case narrated was one of ovarian pregnancy. Long the subject of much disputation, it is now a recognised fact, that within the ovary itself fœtal development may take place. It was left-sided; ovarian pregnancies have been found most frequently on that side. She had no abdominal pain, and she carried her child to, and beyond, term—circumstances which one does not often find associated with tubal pregnancies; and, more than all, at the operation it was readily demonstrated that a tube, nearly two inches long, passed directly from the sac and entered the uterus near its fundus. That this was the Fallopian tube I do not doubt.

Of comparatively little interest as illustrative of the symptomatology of extra-uterine gestation, it has a certain value as bearing on its treatment. Once diagnosed, and with at times an obscure

history it must indeed be a difficult matter, the management of such cases is anxious in the extreme. The great risk, especially in the early days, of rupture of the cyst, coupled with the knowledge of the almost absolute impossibility of preventing this, have led to many ingenious suggestions as to treatment; and first we may consider those specially applicable during the first few months of gestation. Remedies have been administered to the mother with a view of destroying the embryo, the safest of which is ergotine. How this should act is not easy of explanation, as all accoucheurs know that it is not through any poisonous action of the ergot itself, but from the uninterrupted pressure exerted upon the child by uterine contraction, that fatal results follow its ordinary administration.

Extirpation of the sac has been suggested, and the triumphs which abdominal surgery has achieved within the past few years lend weight to it; but how difficult it must be to deal with an unpedunculated, vascular cyst, situated mayhap in the very centre of the broad ligament, one can easily understand.

Puncture of the fœtal cyst and the application of electricity have had, and still have, their advocates. That success has attended both procedures[1] we cannot doubt, but that neither are free from risk we know.[2] The first is too apt to be followed by suppuration and septicæmia, and from the last is inseparable the dread of inducing such contraction of the walls as would lead to rupture of the cyst. Moreover, by these methods, as with still another plan, the use of narcotic injections, success leaves a dead embryo, which in itself must prove a not inconsiderable source of danger. It may remain quiescent and innocuous—it may become absorbed; it is known to have done both, but that such favourable results should follow is by no means certain.

Lastly, and possibly best of all, we have the method of Dr Gaillard Thomas.[3] So ingenious is this, that I give the operation and its result in his own words. The case he had to deal with was one of left-sided cyst, of three months' growth, in which the suffering was so great, and the danger of rupture so imminent, that immediate interference was demanded.

"The patient, having been etherized, was placed upon a table before a window admitting a strong light, in the left labial position, and Sims's speculum introduced. Through this the cyst to the left of the uterus could be distinctly palpated. Now, fixing a long-handled tenaculum in the cervix uteri, and another in the vagina near the left ileum, this part was by them put on a stretch, so as to make of that side of the canal a triangle, the base of which was over the cyst and the apex at the vulva. Assistants held these

[1] Greenhalgh's case; Lancet, 23d March 1867. Allen's cases; American Jour. of Obstet., May 1872.

[2] Puller, Des Grossesses Extra-Uterine, p. 56.

[3] A Clinical Contribution to the Treatment of Tubal Pregnancy. New York, 1875.

tenacula during the operation. Taking the platinum knife of the galvano-caustic battery, which was brought to a white heat, I now passed it gently over the base of the triangle described as created in the vagina, carrying it from one tenaculum to the other. By repeating this, the vaginal wall over the lower segment of the cyst was slowly cut through. In six minutes the cyst was opened by the incandescent knife, and a straw-coloured, slightly pinkish, fluid was thrown out with such force as to fly into my face and over my clothing.

"Thus far, no blood whatever had been lost. I now passed my index finger into the cyst, and felt a fœtus lying horizontally, with the head towards the ileum, and the feet towards the uterus. Passing in the middle finger likewise, I caught the feet between the two, and turning the fœtal body, drew them through the artificial os which I had created, and delivered the child from the vicarious uterus which it occupied. The steps of the procedure exactly resembled those adopted in ordinary podalic version. The fœtal body advanced steadily until the arms reached the opening; there arrest occurred until they were swept out. The head was then arrested, and I strove to liberate it by manipulation and traction. Failing in this, I applied a pair of long-handled placental forceps, and at once it was extracted. The cord was then cut, and I proceeded to deliver the placenta by gentle traction and detachment, as is done after ordinary labour. Thus far, fourteen minutes had been consumed. At this point the first difficulty which had attended the operation showed itself. This was due to want of knowledge on my part as to the exact manner in which the placenta is attached in tubal pregnancy. Foreseeing this difficulty, I had carefully looked for information in the literature of the subject, but could find none which was of any practical value. I feared to detach the placenta with any degree of force, for the reason that I might, I thought, tear through the wall of the sac, and thus open into the peritoneum. For this reason I proceeded less rapidly and vigorously than I should otherwise have done. When I had separated a little over half of the placenta, a very severe hæmorrhage took place, and so much was the patient's condition depreciated by it in the two or three minutes of its duration, that I was unwilling to delay for the removal of more. Tearing the detached portion off, I passed a large gum elastic catheter into the sac, and injected a solution of persulphate of iron into it. This I was very sorry to be forced to do, but the hazard of delay was too great to allow of any other course. The flow of blood was instantly checked, but this was attained at the sacrifice of perfect drainage, and the leaving of the sac full of coagulated blood and a portion of the placenta. Instead of inserting a drainage-tube, I was forced to substitute a long tent of carbolized cotton saturated with a solution of the persulphate of iron. In twenty-eight minutes from the commencement of the operation the patient was put to

bed; her head kept low, the foot of the bed elevated about six inches, ten drops of Majendie's solution of morphia injected subcutaneously, perfect quiet established, and a milk diet ordered. After this all went well until the evening of the fourth day, when I withdrew the tent of cotton, and symptoms of septicæmia soon showed themselves. These yielded to constantly repeated injections into the sac of carbolized water at the end of a week. On the seventh day after the operation slight hæmorrhage took place from the sac, but was without difficulty controlled by the addition of a small amount of solution of persulphate of iron to the carbolized water. On the fifteenth day the remaining portion of the placenta came away spontaneously. On the sixteenth day evidences of an embolus in an unimportant vessel of the arm showed themselves, which created a small abscess, and about the same time fears were entertained that phlegmasia dolens was developing. This last, however, proved delusive. Subsequent to this period no evil symptoms showed themselves, the patient suffering only from fæcal impaction, probably the result of interference with defecation by the obstruction exerted by the tumour, and the interference with peristalsis effected by the large amount of morphia taken." Good as the operation seems, and admirable as regards its success, had the placenta been left untouched, the recovery would, in all probability, have been safer and more rapid.[1]

Should gestation go on until mid-term, the danger of rupture becomes much less; it behoves us, however, to do all in our power to protect the patient from all possible risk. Pain must be relieved as it occurs, the general health attended to, and all chances of direct injury carefully guarded against. When term is reached, and symptoms of labour make their appearance, the pains should be controlled by full doses of opium, and strict watch kept, lest under the muscular contractions the sac should give way. Fortunately this is of rare occurrence, and when it does happen, gastrotomy must be at once resorted to. Performed in such circumstances the operation is attended by greater risks than in cases of ruptured uterus; but still, as the one chance, the patient should unquestionably have the benefit of it. Ere, however, term is reached, or if reached is safely passed, comes for consideration the important question of treatment by gastrotomy.

Many hold that no operation should be performed, but that to nature should be trusted wholly the process of elimination. Glancing hastily at the best collection of statistics, it almost seems as if they were right. Here are those of Dr Parry:[2] Of 188 cases

[1] This, however, is not the only occasion upon which vaginal section has been successfully performed in the early months. Many years ago Dr Thomas Keith treated a case in this way. He cut into the sac, removed the fœtus and the placenta. The woman, spite of the terrible hæmorrhage that occurred, made a good recovery.

[2] Parry on Extra-uterine Pregnancy, p. 228.

reaching or passing beyond term, and left to nature, 99 died, a mortality of 52·65 per cent., and this, he thinks, "may be assumed as the ordinary mortality in extra-uterine pregnancy going on to term or beyond it without operative interference." With such a terrible mortality surgical science has tried hard to contend, and it is well to view the results. Possibly the truest and easiest way to reach their teaching is to consider successively the three periods at which operative interference has been advocated—

1. When the child has become viable;
2. After term, when the puerperal period has passed;
3. When the sac has suppurated and an external fistula formed.

(1.) *When the child has become viable.*—The names of Baker, Brown, Lawson Tait, and Koeberlé are intimately connected with the advocacy of operation at this period, and justly render it deserving of careful consideration. Interference on behalf of the child is the grand reason given for it, but the risk to the mother is very great. "Of 62 cases of abdominal section tabulated, 20 were performed at or before the end of the ninth month; of these no less than 14 died, a mortality of 70 per cent.;"[1] 17·35 per cent. more than if the cases had been left to nature. Even as regards the child, the results are far from satisfactory: "of 20 primary operations, 8 children lived, and 12 died."

The all but absolute rule in obstetric practice of giving the mother the benefit in cases of difficulty as between her life and that of the child, may well hold here. The very uncertain chance of saving a life which may never reach maturity, seems by no means a sufficient reason for imperilling more gravely an already much invalidated life.

(2.) *After term, when the puerperal period has passed.*—"Of 36 cases, there were 14 deaths, a mortality of 38·88 per cent., or 13·77 per cent. in favour of performing the operation rather than trust to nature."[2]

13·77 per cent. in favour of operation is surely considerable gain, and points conclusively to the advantage of surgical interference. In the table of cases given by Parry, one thing, however, is very marked—the further removed the case was from the period of term, proportionably less was the risk.

(3.) *When the sac has suppurated and an external fistula formed.*—Mr Jonathan Hutchinson's rule with reference to extra-uterine cysts is this:[3]—"Extra-uterine fœtation cysts ought not to be meddled with in any way, either by puncture or incision, until suppuration has occurred and an abscess fistula has been formed." As the opinion of one who has devoted considerable attention to the subject, it is of much value, and to very many the force of it must be apparent.

In favour of the primary operation we have the very frequent

[1] Parry, page 236.
[2] Parry, page 239.
[3] Lancet, 19th July 1873.

reason that the life of a woman carrying an extra-uterine child is never safe; a blow or a fall may produce a speedily fatal rupture, or, as happened in the case I have narrated, a deteriorated condition of the general health may lead to such changes in the vital condition of the sac that grave mischief will speedily follow. Against it, however, we have the statistics already quoted, which seem to me to prove unquestionably that the risks of operation while the child is still alive, or but recently dead, are far greater than if matters be left alone.

In the great majority of such cases you have a non-adherent cyst, an existing condition which adds much to the danger and the difficulty of the operation. The placenta, too, is vital and unchanged, and this is matter of much importance, as it may not only, if wounded, prove the source of serious hæmorrhage during the operation, but, *advisedly* left *in situ*, is sure to add greatly to the risks of septicæmia. The longer interference can be postponed, the imminence of these conditions becomes less. Should the sac suppurate, and in the cases demanding operation it always does so, adhesive inflammation of the peritoneal covering fortunately accompanies it. This, necessarily a primary step in the formation of a fistulous opening, lessens greatly the risks of abdominal section. In the placenta, as in much else, "time works changes." The death of the embryo brings its functions to a close, and immediately it begins to undergo a process of transformation followed by gradual disintegration.

So, waiting and watching seem to have their reward, for in 32[1] cases treated by abdominal section after a fistula had formed, only three died—a mortality of little over nine per cent. With the knowledge of such satisfactory results, it is just possible that in some cases we might be tempted to wait too long in order to obtain them. We must, therefore, in every such case, keep constantly before us the perils to which the patient is exposed. Briefly, these are rupture of the cyst, septicæmia, and pyæmia. In cases which have come to term or passed beyond it, the first can generally with ordinary care be avoided, and in the use of the clinical thermometer we have a ready and easy way of detecting the latter. Should either condition unhappily befall, immediate interference becomes imperative, but in many instances this can be delayed until such a time as it becomes politic and safe. As regards the operation itself and its after-treatment, I have nothing to say but this—that in every instance in which it can possibly be accomplished thorough drainage should be instituted. In some we may manage by means of an opening already provided; in others, by an incision through the abdominal parietes at the lowest adherent point of the sac; and it might in some circumstances be worth considering the proposal of Marion Sims to drain through the posterior vaginal cul-de-sac. Added to the advantage of the certain removal of abnormal

[1] Parry, page 261.

secretion, the tube has this, that by means of it, antiseptic injections can be employed to keep the sac contents "sweet."

Two classes of cases I will merely refer to—those in which the fistulous opening takes place through the walls of the bladder, or of the rectum. They must be dealt with entirely on their merits; in some, abdominal section will prove a safer procedure than lithotomy; and Dr Matthews Duncan has already demonstrated how in others podalic version may be practised, and a well-grown child delivered by the rectum.[1]

ARTICLE III.—*Diphtheria: Typical Cases, in illustration of its Diagnosis, Prognosis, and Treatment; together with Remarks on the Signification of Albuminuria in that Disease.* By Sir JOHN ROSE CORMACK, K.B., F.R.S.E., M.D. Edin., M.D. Paris, Fellow of the Royal College of Physicians of London, Chevalier of the Legion of Honour, Physician to the Hertford British Hospital of Paris.

(*Continued from vol.* xxi. *page* 1087.)

TREATMENT OF THE PARALYTIC AFFECTIONS OF DIPHTHERIA, WITH REMARKS ON THEIR PATHOGENESIS AND CHARACTERISTICS.

IN studying the treatment of paralytic affections, so frequently associated with diphtheria—so very much more frequently associated with it than with any other asthenic disease—it is necessary to take an enlarged clinical view of conditions kindred to it in respect to disordered and exhausted nervous power. We must bear in mind that paralysis in different forms and degrees is an occasional concomitant or sequel of the puerperal state, of the morbid state called hysteria, of various acute diseases, and of all conditions characterized by asthenia.

In the *Gazette Hebdomadaire de Médecine* for 1859, Dr Landry published an account of a case of generalized paralysis, which set in during convalescence from pneumonia, and terminated in death. The case occurred at the Hôpital Beaujon of Paris, in the wards of Professor Gubler. Dr Landry's narrative is followed by remarks of Professor Gubler, which conclude with a statement to the effect that a paralysis similar to that which occurs as a sequel of diphtheria may supervene as a secondary result of numerous maladies very different from one another, but all producing exhaustion of the nervous system, impoverishment of the constitution, and a lowering of organic power—conditions favourable to the production of permanent disorder of the innervation. On the appearance of this case, Dr Macario, of Nice, laid claim to priority, in a communication published in the *Union Médicale* of Paris for 8th November 1874. He there describes four cases

[1] Edin. Med. Journal, July 1863.

of pneumonic paralysis. Dr Macario's cases are given in his work on *Dynamic Paralysis*, published in the *Bulletin Général de Thérapeutique* for December 1850. Many authors, writing before and since that date, have described cases of pneumonic paralysis. To priority in the publication of such cases, Professor Gubler lays no claim. The important claim to priority which he does put forth is that of having first established, that generalized paralytic affections occur as secondary results of all the diseases of short duration entitled from their severity to be called acute. He explains that under the term acute diseases (*maladies aigues*), he includes only the diseases properly designated fevers and the inflammatory diseases accompanied by fever. Professor Gubler has, I think, succeeded in establishing his proposition, that all the diseases embraced in his restricted category of "acute" may induce local or general paralytic affections during their evolution and after the cessation of their active manifestations.[1]

A similar opinion is expressed by Dr E. Fritz in his valuable work on the different symptoms referable to the spinal cord, which frequently occur in the course of typhoid fever. He strongly dissents from a view put forth by Drs Lombard and Fauconnet, of Geneva, to the effect that typhoid fever, to the exclusion of the acute diseases, possesses a monopoly of spinal symptoms. He admits that affections of the nervous system, in various forms and degrees (including paralytic affections), occur in the course of, as well as during convalescence from, erysipelas, pneumonia, pleurisy, and bronchitis.[2]

In my account of the relapsing fever, as I saw it in Edinburgh in 1843, in the first months of that most remarkable epidemic, I mention that paralysis of the deltoid and other muscles occurred in a few cases. In a woman, aged 36, there was loss of power in both deltoids, which continued for about ten days after restoration to health had taken place in all other respects.[3] As my fever patients, on leaving the hospital, generally ceased to be under my observation, I had comparatively few opportunities of studying paralysis and the other sequels of relapsing fever. In later writings on relapsing fever, I find notices of partial paralysis having occurred during convalescence in the practice of various observers. It is probable, therefore, that had not my patients passed from under my observation so soon after recovery, I should

[1] Gubler (Adolphe), in *Archives Générales de Médecine* for 1860.—"Le seul mérite que je puisse revendiquer est d'avoir, le premier, je crois, élevé au rang de fait général la production des paralysies généralisées comme effet secondaire de toutes les affections de courte durée vraiment dignes par leur intensité du titre de *maladies aigues*."

[2] Fritz (E.), Etude Clinique sur Divers Symptomes Spinaux observés dans la Fièvre Typhoide. Paris, 1864.

[3] Natural History, Pathology, and Treatment of the Epidemic Fever at present prevailing in Edinburgh and other Towns, illustrated by cases and dissections. By John Rose Cormack. London, 1843.

have seen a large number of post-febrile paralytic affections in the Edinburgh fever of 1843.

Dr Richard T. Lyons, of the Bengal army, in his very valuable *Treatise on Relapsing or Famine Fever* (London, 1872), says "that paralysis is more commonly associated with that fever in India than in Europe." In this opinion he is probably correct. Possibly, however, the Indian fevers, which, from the published descriptions, Dr Lyons considers to have been epidemics of relapsing fever, were not all of that nature, using the term *relapsing fever* in the special and restricted sense in which clinicians have employed it for the last thirty years. Be that as it may, it is evident that many of the Indian epidemics in question were essentially similar in kind to many well-observed and accurately described European epidemics of relapsing fever. But even supposing that the fever known in Great Britain under the name of *relapsing* is not the same as an Indian fever, the following extract from the work of Dr Lyons furnishes, in a concise form, some most interesting and precise statements in proof of the frequency with which various forms of paralysis have been observed as sequelæ of fevers in India. Such statements strengthen the opinion that there is nothing absolutely *sui generis* in the paralysis of diphtheria.

At page 148 of his treatise, Dr R. T. Lyons says:—

"In the Kimedy epidemic of 1833, Dr M'Donnell met with two cases in which paralysis supervened, and in one of these there was also anæsthesia or numbness; in both, the paralysis occurred during convalescence. In the Mercara epidemic of 1842, Lawrence says that several patients experienced loss of power and sensation in the lower limbs, and walked with a tottering gait; these symptoms being sometimes preceded, and sometimes followed, by œdema of the feet and hands. In the Mangalore epidemic of 1845, the same author found paralysis to be a frequent complication; and he further states, that convalescence from paralysis was protracted by a temporary recurrence of the earlier symptoms. Whether these were increase of circulation, œdema, or febrile heat, the paralytic symptoms were always increased at the same time. Eyre met with three cases of palsy, which were mistaken for beriberi: all three proved fatal. In one case, the paralysis occurred in the primary fever; in another, during the intermission; and in the third, in the relapse. In the Umballa epidemic of 1866, Bateson found one of his two cases of hæmorrhage from the bowels affected with facial paralysis. Gray likewise met with a few cases of partial paralysis in the epidemic in the Lahore jail in 1864. Hugh Clark observed one case of dysphagia. In the *Indian Medical Gazette* for April 1867, Garden describes eighteen cases of paralysis in children after fever. I consider the disease, from Garden's description, to have been relapsing fever, for the following reasons:—The duration of the fever from two to eight or ten days is more consonant with the character of relapsing fever

than of typhus or typhoid—the former, moreover, being rare in Upper India, where Dr Garden's cases occurred. In his account of the Saharunpore epidemics of 1869–70, he states that the disease was of annual and constant occurrence in his district. It is probable that it was occasionally prevalent in 1866, in which year Garden made these observations. In the eighteen cases, paraplegia occurred in ten; paralysis of the left leg in one, of the right wrist in two, of the left arm in one, of the right arm in one, of the pharynx in one; and hemiplegia in two. All these cases occurred during convalescence. There was a natural tendency to recovery after an indefinite duration, but the more protracted cases became permanent."

Here we find two very strong points of similarity to diphtheritic paralysis—the "natural tendency to recovery," and the "tendency of the more protracted cases to become permanent." It is not inconsistent with a belief in the tendency to natural recovery, to admit that protracted cases sometimes become permanent.

Permanence of the paralysis depends generally, but not always, upon atrophy of the muscles, caused by their protracted disuse—the mere continuance of the paralysis becomes in fact a new morbid cause, sufficient to prevent recovery. A considerable number of protracted cases, if properly managed, may be prevented from becoming permanent.

In a very small number of cases, permanence of the paralysis depends on the supervention of a structural change in the tissue of the nerves themselves, or in the nervous centres by ascent of morbid influence from the periphery. Cases of this description generally go on from bad to worse, and do not admit of much amelioration by treatment.

Degeneration of muscular tissue is another, and a hopeless cause of permanence of the paralysis. This degeneration of tissue cannot be cured; but something may be done to prevent it, and arrest its progress by suitable alimentation and medical treatment. It is more apt to occur in certain muscles than in others. It has been and is frequently observed as a sequel of certain fevers, and of other diseases, as well as of diphtheria.

When the paralytic affections of diphtheria have existed for a long time, there is great reason to fear that they have become permanent. In each individual case, however, it is the duty of the physician to search into the cause of the affection, and, even when the prognosis is as unfavourable as it is possible to be, resolutely and patiently to attempt a cure. In cases of diphtheritic paralysis apparently the most hopeless, recoveries occasionally take place. The physician, therefore, acting on rational principles, must try in succession different plans, and even different methods of treatment, and never abandon the case as hopeless, till he has exhausted all his therapeutic resources.

It is encouraging to know that it is in accordance with general medical experience to state that the majority of cases of diphtheritic paralysis, though, when superficially looked at, they seem hopeless, are really hopeful. A vigilant physician, fully understanding his therapeutic opportunities, and expert in adapting the details of treatment to the varying exigencies and difficulties of each case, generally succeeds in preventing muscular atrophy and permanent paralysis, its consequence.

I have minutely described, in the *British Medical Journal* of 23d and 30th January, and 1st May 1875, cases of paralysis following enteric fever and dysentery. At present, it is sufficient to refer to such and such-like cases as evidence of the important fact, that although paralytic affections are very much more common as sequels of diphtheria than of any other malady, they do occur in the course of, and after, all asthenic diseases, and also in diseases which are from any cause characterized by anæmia and exhaustion. In all such cases, there exists a greater or less tendency to recovery—a greater or less struggle with imperfect nutrition and its cause. In all such cases, therefore, there likewise exists an imperative demand for that alimentation which, from easy assimilation and special recuperative qualities, will best restore the waste of tissues, make red blood, and re-establish the nervous influence necessary for the normal maintenance of the functions of the various organs of the body.

The pathogenesis of *most*—I do not say of *all*—of the paralytic affections following acute diseases is no doubt the same; and if so, their treatment must necessarily be also similar. In convalescence from these diseases, and indeed, it may be said, always in convalescence, the dominant condition is asthenia. It is the existence of asthenia and anæmia in convalescence which, as a rule, alone constitute the difference between it and health. It is to the dominance of asthenia and anæmia that the paralytic affections of convalescence are attributable, though their long continuance and permanence may be due to the development or supervention of other causes. During the course of, and in the convalescence from, no other disease, are asthenia and anæmia so constant and so profound as in diphtheria; and, consequently, in no other disease is paralysis so frequent. Dr Bailly, in his inaugural thesis for the Parisian doctorate in 1872, entitled *Des Paralysies Consécutives à quelques Maladies Aigues*, has collected 220 cases of diphtheritic paralysis, and has not been able to find in the records of medical science more than 55 cases of paralysis following typhoid fever, and 24 following smallpox. He comes to the conclusion that in every 11 cases of diphtheria, one is characterized by paralysis. Trousseau, to whom French medicine is indebted for the complete and beneficial change which has taken place in the treatment of typhoid fever, attributes the frequency of nervous sequelæ in that disease to the atonic condition to which the convalescents

were reduced by a long-continued and resolute antiphlogistic regimen.

This subject invites discussion, but not being fairly within the scope of the present paper, it must be dismissed by a bare statement of two or three facts :—1st, The paralytic affections of convalescence are generally (and I think correctly) regarded as originating in reflected peripheric irritation; 2d, They generally begin in the inferior, and afterwards show themselves in the superior extremities; to this rule there are exceptions, and while they have their predilections, they are met with in all the muscles and muscular organs of the body; 3d, In diphtheria alone, the paralysis has the distinctive character of showing itself first in the veil of the palate, beyond which in many cases it does not extend; 4th, Sudden death in diphtheritic paralysis frequently occurs from the paralysis attacking the heart, larynx, or muscles of respiration.

The principles applicable to the dietetic and medical treatment of the general disease are also applicable to its paralytic sequels. So-called specifics are valueless. The system must be nourished and tonified—the plan adopted being based on rational principles, and carefully modified in accordance with signs, symptoms, and results. Cod-liver oil, from its nature as well as from its easy assimilation, proves of signal benefit in arresting waste of tissue. Bordeaux wine is often at once food and physic in the paralysis of diphtheria; and in cases of flagging convalescence, it is of all wines the most recuperative, being alimentary and tonic, as well as stimulating. Sometimes it may be administered very largely; but it must always be given with the greatest discretion and watchfulness. About the 5th March, S. M. was, I believe, getting too large an allowance of Bordeaux, as well perhaps as of food.

Iron is particularly indicated in diphtheritic paralysis, as the patients are always anæmic. There are few cases in which its administration does not prove itself in an obvious manner to be useful in a high degree. Sometimes it is only borne in very small doses.

Nux vomica, either in the form of extract or the liquor strychniæ of the British Pharmacopœia, taken daily, with some ordinary combination of laxatives, such as the compound rhubarb pill of the British Pharmacopœia, ought to constitute a part of the treatment in nearly every case. It increases the peristaltic action of the intestine, imparts expulsive and retentive power to the bladder, and likewise has a general influence in improving innervation. The dose ought to be moderate, for large doses prove too exciting to the nervous system, and so tend to exhaust rather than invigorate its flagging powers. From half a grain to two grains of the extract once a day, with or without the occasional or constant addition of from five to ten drops of the liquor strychniæ two or three times a day, are suitable doses.

Local treatment is of the utmost importance with a view to direct towards the wasted and wasting muscles a greater supply of blood, and thereby improve their nutrition. Occasional blisters act very beneficially in this way; but they must not be relied on to the exclusion of the constant use of stimulating pastes or liniments. I do not know of any local stimulant more efficacious or better adapted for continuous use, than a ginger and mustard paste like that employed in the case of S. M. The object of using the paste is to maintain a warm glow in the skin without vesicating it. The potency of the paste must therefore be proportioned to the susceptibility of the skin. By applying too powerful a stimulant to an extensive cutaneous surface, we may be obliged to suspend the local treatment, and so impede the progress of the cure. In some excitable patients who cannot bear long-continued counter-irritation of the skin, a gentle kneading of the paralyzed muscles three or four times in the twenty-four hours will be found useful as a means of directing a supply of blood to them. In such cases, after each kneading, a moderately stimulating liniment containing a small quantity of laudanum may be applied with great benefit. The laudanum prevents an uneasy bruised feeling, which is often complained of after the kneading, and in irritable subjects is apt to induce restlessness and insomnia.

Galvanic excitement of contraction in the paralyzed muscles is often decidedly useful; but it is a measure which requires to be employed with moderation and at intervals of about twenty-four hours. If resorted to too early, or too freely, it exhausts the nervous power of the affected muscles.

The principles of the treatment of diphtheria are precise and simple; and yet there are few if any diseases which more severely tax the patience, ingenuity, and therapeutic resources of the physician. He has to devise and carry out innumerable little details which do not admit of description, and yet upon which success or failure may depend. He has also more frequently in this than in most diseases, difficulty in holding his own against the wishes of despairing affection, too eager to seek counsel from some special quack, or to try an infallible nostrum, which meddlesome ignorance has declared to have been successful in a "precisely similar case."

Article IV.—*Cases of Puerperal Fever, with reference to Epidemic Origin.* By Robert Bruce, M.D.

(*Read before the Medico-Chirurgical Society of Edinburgh, 5th April.*)

At a late meeting of this Society, Dr Matthews Duncan read a paper to disprove an idea which was very prevalent, that there were occasional outbreaks of puerperal fever in an epidemic form. In the subsequent discussion I stated that my experience was entirely in accordance with Dr Duncan's views.

On after consideration I thought it might be more satisfactory to make out a detailed statement of those cases of puerperal fever which came under my own personal observation, and to offer any information I might possess as to their mode of origin. In this retrospect is comprehended a period of twenty-one years, commencing with 1855 and ending with 1875, the number of confinements being upwards of 3500.

In making my statement, it must be noticed that the term puerperal fever is rather ambiguous, and does not yet seem capable of being clearly defined, notwithstanding all the discussions which have taken place concerning it of late; and I do not attempt to give any definition of it now, further than to state that I include under that condition those cases where we find a variable amount of fever with rapid pulse, commencing usually about the third day, often accompanied with abdominal pain, also with suppression of the lacteal secretion, and a grave amount of constitutional disturbance.

I find, then, that there were no cases of puerperal fever in my practice during the year 1855, and none occurred until near the end of 1856. A patient who was confined on the 28th of December was seized with rigors, pain over the uterine region, and fever, on the third day after delivery. She passed through a smart attack of puerperal fever, and made a good recovery. No cause could be assigned for it, and I did not meet with another instance until the 4th of September 1859, or a period of nearly three years. The patient referred to had a very severe and protracted labour, and to this was attributed the onset of the fever; she made a good but slow recovery. No other case supervened at this time, but in the following year (1860) I met with four examples. The first happened in a patient who was confined on the 9th of April. She had accidental hæmorrhage a fortnight before delivery, which recurred again and again every two or three days. During labour there was also considerable hæmorrhage. Although it was by no means a protracted or a difficult case, yet there was extreme prostration after its termination, owing to the amount of flooding, not merely at the time, but on the previous occasions already mentioned. On the second day after her confinement she again had a flooding, and the same evening abdominal tenderness and other symptoms set in, indicating an attack of puerperal fever, under

which she succumbed three days afterwards. The only possible cause of infection in this case was, that two days previously I had performed a post-mortem examination in a case of cancer of the stomach; but to guard against any injurious effects, washing with disinfectants had been carefully attended to. The second case occurred on the 10th of April, the morning succeeding the delivery of the previous patient, and before I had the least suspicion of anything going wrong with her. The labour was natural, and rather easy; but on the third day thereafter symptoms of puerperal fever set in, and death took place on the eighth day after confinement. The presumable cause of the fever here was my attendance upon the former case, yet I attended three other confinements during the illness of these two, and none of them had the slightest bad symptom. The third instance occurred in a patient who was delivered on the 7th of August, four months after the previous cases. The day following there was abdominal tenderness and extreme tympanitic distention. She recovered after a very severe illness. No exciting cause whatever could be traced here, and no other cases occurred at this time, although I attended a number of confinements during her illness. The fourth case happened fully a month afterwards, the patient being confined on the 10th of September. She was unmarried, and behaved in a most reckless manner. Delivered in the morning, the same evening she rose and opened the outer door, and then stood at an open window; while every day afterwards she got up and went about the house so long as she was able. I suppose we do not require to search any further for the cause of the fever here. It terminated fatally on the thirteenth day after delivery.

I met with no other example of the disease until the 28th December 1862, after an interval of more than two years. The patient did well until the eighth day, and then was seized with an attack, which very much resembled typhoid fever. She died on the twenty-fifth day after her confinement. There was no apparent cause here, and no other cases followed.

No other example came under my observation until the 22d February 1864, after an interval of about fourteen months. Confined on the 22d, the patient here referred to was seized with headache and fever on the 26th, and on the 27th an unmistakable rash of scarlet fever appeared. The case terminated fatally on the ninth day after delivery. Eight months afterwards I met with a similar case. Delivery took place on 21st October; headache, sickness, and fever supervened on the 23d; next day the scarlet eruption appeared; and death occurred on the 27th. Scarlatina was prevalent in the town at the above-mentioned periods.

The years 1865, 1866, and 1867 passed without my seeing any cases of puerperal fever, and I met with none until 27th February 1868, after an interval of four years and an attendance upon 780 confinements. The patient I take notice of now was quite well

until the tenth or eleventh day after delivery, when symptoms of puerperal peritonitis set in, and she died on the 30th of March. No cause could be assigned for the invasion, and no other case presented itself at this time. The next case occurred in a patient who was confined on the 11th of October of the same year; she died on the 20th of puerperal peritonitis. The only cause that could be assigned here was injudicious treatment on the part of the nurse, combined with mental anxiety. No other case happened during my attendance on her. On the 7th December of the same year a patient was delivered of her first child after a favourable labour; next day the pulse rose, and on the 9th headache supervened; these symptoms were followed two days afterwards by the rash of scarlatina, which covered the whole body, and the urine was found to be albuminous. This case terminated fatally on the 18th. All my other patients attended at the same time made excellent recoveries. 1869 was a blank year, and no further instances were met with until the end of 1870, after an interval of nearly two years, and an attendance upon upwards of 400 confinements. The patient now to be mentioned was delivered on 26th November, after a tedious labour, which required instrumental interference on account of the peculiar shape of the infant's head. The symptoms presented were of an unusual character, but I presume it must be considered a case of puerperal fever, although there was very little acceleration of pulse until the last day. For some days there was frequent vomiting without any sickness or retching, which is a very unfavourable symptom. The pain complained of was at first more of a neuralgic or remittent character, but afterwards there was tenderness on pressure. The case terminated fatally on 2d December. The general health of this patient, previous to her confinement, was far from satisfactory; she was highly jaundiced for a considerable period, and had a very troublesome cough. The cause of the illness here, I should say, was the previous unhealthy condition of the system.

In 1871 I have nothing to note, but in 1872 there were four cases of puerperal fever, three of them occurring during an epidemic of smallpox, and being connected with that disease.

In the first of these the patient was about 6½ months advanced in pregnancy, when, having been seized with an attack of variola, she aborted on the 3d of April, and died on the 9th.

The second happened on 11th April; the patient had sickened for a day or two previously, and on the afternoon of her delivery (which had taken place early in the morning) the variolous eruption made its appearance, and the illness terminated fatally on the 20th. The third occurred on the 4th of May. The patient was at her full time, when, without any premonitory symptoms to attract notice, she was seized with an attack of variola; the eruption showed itself on the 1st of the month, so abundantly as to be almost confluent, yet the patient's general condition continued remarkably good, so

much so as to excite surprise. Labour took place on the 4th, and terminated very favourably—a primipara, too, and somewhat up in years. An excellent recovery ensued, without a single untoward symptom, yet the escape from such a dangerous complication could hardly reconcile this patient to the change which it made in her personal appearance.

The fourth was a case of ordinary puerperal fever. Delivery took place on 4th December, and death followed on the 14th. No cause could be assigned for the attack; and although I attended eleven other confinements during the illness of this patient, all made excellent recoveries.

In 1873, a patient confined on 7th October fevered for about a week, and then did well; and, on 16th November, a very serious and prolonged case of puerperal fever was met with, terminating in recovery. No cause could be ascertained for its occurrence, and no further cases supervened then.

In the year 1874 I attended rather a remarkable succession of cases, the particulars of which are as follows:—No. 109, 14th July, Mrs W., labour natural, fevered for a few days. No. 111, 17th July, Mrs M., fevered for a few days. No. 112, 17th July, Mrs G., fevered for a few days. No. 113, 17th July, Mrs I., fevered on fourth day, and continued ill for a fortnight, but made a good recovery. No. 114, 18th July, Mrs M'L., fevered for a few days. No. 115, 19th July, Mrs G., labour natural and quickly over; everything went on well until the second day afterwards, when pain was complained of, a symptom indicating the commencement of an attack of puerperal peritonitis, which terminated fatally on the 25th. No. 116, 19th July, Mrs G., fevered for some days. This turned out to be a case of pelvic cellulitis, which ended in recovery. No. 120, 27th July, Mrs C., fevered on ninth day, and continued ill for a few days. Thus, between the 14th and 27th of this month, no less than eight patients fevered more or less after delivery, seven in close succession; and although, under ordinary circumstances, only two of them could properly be considered cases of puerperal fever, it was the occurrence of so many at one time which gives a certain amount of significance to what, at another time, and under other circumstances, would have been thought little of, for some of them had more the character of a simple "weed" than anything else. But, supposing they were all cases of puerperal fever more or less modified, their mode of origin could most naturally be explained by considering myself to have been the medium of communication, and not any epidemic influence; in fact, the registration returns show that there were very few deaths at that period in Edinburgh from this cause. The only case I have now to notice took place on 29th December 1875, seventeen months after attending the last of those just mentioned. The placenta in this patient was adherent, and exceedingly difficult to remove, accounting readily enough for the uterine irritation and febrile symptoms

which followed. A good recovery was made, and all my other patients did well at this time.

This concludes my list of cases, and I will now proceed to tabulate them for more easy reference.

Year.	No. of Cases.	When confined.	Probable Cause of Fever.
1855	None	...	.....
1856	One	Dec. 28	Unknown.
1857	None	...	.....
1858	,,	...	.....
1859	One	Sept. 4	Severe and protracted labour (?)
1860	Four	April 9	Repeated floodings (post-mortem examination two days previously).
,,	...	April 10	Infection probably carried.
,,	...	Aug. 7	Unknown.
,,	...	Sept. 10	Rash conduct of patient.
1861	None	...	.....
1862	One	Dec. 28	Unknown.
1863	None	...	.....
1864	Two	Feb. 22	Scarlatina.
,,	...	Oct. 21	Scarlatina.
1865	None	...	.....
1866	,,	...	.....
1867	,,	...	.....
1868	Three	Feb. 27	Unknown.
,,	...	Oct. 11	Mental anxiety and bad nursing.
,,	...	Dec. 7	Scarlatina.
1869	None	...	.....
1870	One	Nov. 26	Previous bad health.
1871	None	...	.....
1872	Four	April 3	Variola, and subsequent abortion.
,,	...	,, 11	,,
,,	...	May 4	,,
,,	...	Dec. 4	Unknown.
1873	Two	Oct. 7	,,
,,	...	Nov. 16	,,
1874	One (?)	July 14	Five of these were doubtful cases, and of very short duration. No. 6 may have been infected through attendance on No. 4, while No. 7 turned out to be pelvic cellulitis.
,,	Two (?)	,, 17	
,,	Three (?)	,, ,,	
,,	Four	,, ,,	
,,	Five (?)	,, 18	
,,	Six	,, 19	
,,	Seven	,, ,,	
,,	Eight (?)	,, 27	
1875	One	Dec. 29	Adherent placenta; very difficult to separate.

Considering, then, that there were, properly speaking, only 2 cases of puerperal fever in 1874, I find that the total number met with during the twenty-one years was 22, 3 of these being distinctly due to scarlatina, and 3 to variola. One was attributed to the previous unhealthy state of system, and 5 to causes incidental to the labour, while in 8 the origin was unknown, and in 2 instances only (April 1860 and July 1874) was there a suspicion of direct communication from one patient to another; though, even here, there existed room for doubt, as it must be observed that, in the

first of these instances, there was hardly twelve hours' interval between the two confinements, and the second patient was delivered before any symptoms of the fever had been developed in the first. If the disease was not transmitted in this way, there only remains the possibility of my having carried infection to both in consequence of the post-mortem performed two days previously.

With regard to the cases which occurred in 1874, the circumstance most worthy of mention is, that scarlatina was prevailing at the time, and I had been attending several patients affected with that disease. It may be stated here, also, that I never happened to have a case of erysipelas during my attendance upon any puerperal fever patients, and that the only infectious disease I could connect them with in any way was scarlatina, although at the same time being of opinion that, where proper precautions are taken, the doctor is not likely to be the carrier of infection. I cannot banish from my mind, however, the suspicion that the nurse may sometimes be to blame in this matter; and it appears to me much more probable that the poison might be transmitted through her from previous close attendance, it may be, upon a scarlatinous or erysipelatous patient, than by the medical man, who, in going his rounds, remains a comparatively short time in proximity to the disease. I do not imagine that puerperal fever is often spread in this way, believing that, as a rule, nurses are too conscientious to permit such a thing to take place, but that it happens occasionally is, to my mind, not at all improbable. This, however, is only offered as an explanation of some of those cases of apparently unknown origin occurring sporadically, and not to those instances where a number of cases follow in succession, which could only take place in the practice of doctors and of midwives who attend a series of confinements in a short space of time. There are many instances on record of this nature; but, however numerous they may be, epidemic they cannot be called, endemic being the appropriate term; and no doubt a great deal of confusion has arisen from mixing up those two names, for if the word endemic were made use of always when the disease was really endemic, I question if the term epidemic would ever require to be employed in reference to puerperal fever. This, at least, is the conclusion I have arrived at after a careful consideration of all my cases, a noteworthy circumstance in connexion with them being that, with the two exceptions already mentioned, and the variola cases, none of the others occurred at the same time, most of them, indeed, at very considerable intervals. If such things as epidemics do exist, they must be few and far between, since a period of twenty-one years, with a considerable field for observation, has been insufficient to bring any of them under my notice.

ARTICLE V.—*On an Outbreak of Diphtheria in Auchtergaven, Perthshire; with Remarks.* By WILLIAM YEATS, M.D., etc., Bankfoot, Perth.

So frequent, extensive, and dangerous are the outbreaks of diphtheria; so indefinite, to say the least of it, is its etiology; so imperfect our knowledge of its treatment; and so much has been written on it,—that, whilst the subject is *sub judice*, it may not be uninteresting briefly to sketch the particulars of an outbreak which came under my observation in the district of Auchtergaven. The first appearance of the disease occurred in the beginning of March 1875, after which it continued epidemically and uninterruptedly up to the end of June. There were 183 cases in all in a community of 1500, *i.e.*, about 12⅕ per cent.

Whilst it was observed that the disease began in the southern quarter of the district, and was confined to that, the south-western, and northern quarters, not one case occurring in the east end of the district, it is worthy of notice that, some months before, it was reported that numbers of children were suffering, and that several died from croup in Methven, which lies ten miles south-west of this district, and is the nearest village in that direction.

Further, the outbreak resembled in its character the outbreak in North Devon in 1873, which was reported by Mr Winter Blyth to the local authority, in so far as it was mainly confined to the high levels, and to well-exposed, airy situations. Several of the villagers, however, in the lower parts of the district, became affected after several weeks. The disease first broke out among children exclusively, among whom there were five deaths; while after some time adults were attacked, the children meanwhile escaping. Among the grown-up population, there were no deaths in this district, though, three miles to the north-west, there were two deaths among adults about this time. About the beginning of June, several more children were attacked, the explanation of this being that they had been brought from towns at a distance by their friends for the benefit of country air for a few weeks. They seemed to be affected after a day or two's residence in the district.

All classes were affected—the strong and the weak, the rich and the poor—and if any class more than another seemed prone to the disease, it was the healthy, and those who were most exposed, such as ploughmen. It is notable that only one pauper was affected. She was a squalid wretch, and suffered a severe attack, followed by choleraic diarrhœa, which proved almost fatal.

As a preface to some remarks on the cause, a few particulars of the progress of the outbreak may be stated. The first case occurred in a child two years of age, who had just been brought from Glasgow by her mother. The mother had come to nurse the parents, who were ill of bronchitis, and were filthy in their mode

of living. The friends believed that the case was one of croup, and as such I was requested to see it. It looked exactly like the orthodox inflammatory membranous croup. The fauces certainly were red, but there was no exudation to be seen. The respiration was noisy and impeded, the cough was dry and croupy, the voice was stridulous in tone, and there was considerable feverish action. The treatment consisted of a warm bath, emetics of antimony and ipecacuan, castor-oil, and a nauseating mixture. The urgent symptoms fortunately soon disappeared, and convalescence was accelerated by stimulating treatment. Two days after the above, two cases occurred simultaneously, with alarming laryngeal symptoms; the one, a child four weeks old, who died four hours after my visit; and the other, a boy eight years of age, who was moribund, and only lived half-an-hour after being seen. The occurrence of these cases so soon after the first one suggested to me the specific nature of the disease. In these, however, local changes were clearly indicated in the throat, in the one by distinct whitish patches all over the fauces and tonsils, in the other by a single large yellow patch moulded and firmly adherent to the left tonsil. Premonitory symptoms were observed in both cases, but were attributed to cold. After these cases, the disease prevailed epidemically, as already mentioned.

It would be of great interest and importance if the immediate cause of the outbreak could be satisfactorily traced. Regarding the case which was first described, the disease might have been caught by the child in Glasgow, or it might have originated from the unwholesome condition of the house to which the child was brought. That the latter is possible, Sir W. Jenner admits, when he says that we are driven to the opinion that diphtheria not uncommonly originates *de novo*. But it is questionable if the epidemic arose from either of these causes, when we consider the second and third cases which followed. These, as already mentioned, broke out two days after the first; but, although they were near each other, they were half a mile from the first case. Contact could not be traced between any of the cases; and in the houses where the second and third occurred, the sanitary conditions were good, at any rate sufficiently good to exclude this as a cause. After the occurrence of these three cases, the spread of the disease by contagion was quite possible. Contagion, however, appeared to me, at least body-to-body contagion, to play but an unimportant part in the progress of the disease. In an address delivered before the Clinical Society of London,[1] Sir William Jenner gave it as his opinion that diphtheria, in regard to its contagious quality, should be placed in the same category as typhoid fever and erysipelas; either of which is certainly much less contagious than smallpox, scarlet fever, or measles. This opinion is borne out by what I observed in the outbreak I am describing;

[1] 12th February 1875.

for in several instances only one, in others two or three, out of families of from five to seven in number, were attacked, but never all the inmates of the house. The nearest approach to the complete infection of a house was in one instance where a mother and five children were attacked, the husband alone escaping. One woman at the full term of pregnancy, who was confined immediately after attending on her daughter, who had a severe attack, escaped, although she had a severe labour, and instrumental delivery. While attending another patient in her confinement, completing the delivery by the forceps, I felt very unwell, but was not aware to what my illness was due till next morning, when the local and general evidences of diphtheria were manifest. This woman, who, it must be admitted, ran a great risk, was not in the least affected. From these and chiefly from the following considerations, it seems to me that the cause of the outbreak which is here described may be reasonably ascribed to a vitiated state of the atmosphere. The district is far from being well drained. Aguish complaints were at one time common; and even now a sporadic case is occasionally to be seen. Sanitary measures are conspicuously imperfect. Diphtheria prevailed here extensively and fatally on several previous occasions. The diphtheritic poison, like those of the class in which the disease has been placed, is believed to lie dormant for a long time, and to be capable of being reproduced with vigour. Owing to the previous early and severe winter, a vast amount of the turnip crop was destroyed, and allowed to decay on the ground; and this state of matters is known to protect infectious particles from destructive oxidation in the atmosphere. The outbreak began in the outskirts, which are arable, and at a time coincident with the tilling of the soil and the upturning of decayed vegetable matter, which, as already alluded to, was more than usually abundant. Admitting that the atmosphere was charged with the source of infection, we can easily understand how the outbreak progressed and spread quite independent of bodily contagion. Further, holding this view, and from observation, my opinion regarding the mode of invasion of the disease is, that every one living in the district inhaled the poison more or less; that this poison thus introduced only wanted an exciting cause to manifest the characteristic morbid phenomena; and that the stage of incubation was longer or shorter according to the time of accession of the exciting cause which almost immediately set the poison in operation. The principal exciting cause was exposure to cold, more particularly in the evenings. Several cases occurred in persons who had been working late in their gardens, or after playing croquet on a damp lawn, or driving after sunset. These nights were generally foggy, and thus the particles were more likely to be precipitated. Some persons who had been confined to bed for a considerable time from other causes were infected on their first appearance in the open air. The reason that

children were apparently so suddenly and seriously affected lies in the fact that they could not express their premonitory feelings, and were taken outside by their nurses, who were ignorant of their illness or of its nature until laryngeal symptoms gave the alarm. It has been said that the healthy were more prone to the disease. This I attribute to the fact that they were more exposed to atmospheric influences.

In describing the symptoms, my object is only to mention those that were prominent. In the majority, constitutional symptoms preceded the local changes. In some few the reverse was the case. In all, at some stage, both were combined. The most constant early symptom, which often persisted for days before the throat was complained of, was intense headache. This was so severe in many cases as to be only comparable to that of meningitis; and was so uniformly present during the epidemic as to be highly diagnostic. While the patient complained of the headache only, I have frequently seen the throat covered with exudation, the patient himself being unaware of any throat affection. The headache generally yielded within twenty-four hours after treatment was commenced. Gastric irritation and vomiting were common at an early stage, but rarely throughout the disease. In all cases there was an increase of temperature, ranging from 101° to 103° F. This increase in some cases yielded after two or three days, but often continued into the second week. The pulse varied much in different individuals; in children it was usually frequent, often reaching 140 beats in the minute. In one child of four years, who recovered, the pulse reached 170 in the minute, with a temperature of 103° F. In adults a pulse of 60 in the minute was frequently observed, with a temperature ranging from 100° to 102° F. during the course of the attack. The skin was pungently hot and burning, the soles of the feet often being very troublesome from this symptom. The tongue was invariably creamy and moist. The breath was most offensive. Great muscular weakness was present from the commencement, and continued throughout the disease. Shooting pains in the ears were common, but principally after the disease had locally manifested itself. The urine almost from the beginning was more or less albuminous in every case, and lithates were abundant. Cough was present in greater or less degree, most troublesome when the epiglottis was much affected, and quite croupy when the larynx was involved. Difficulty and pain on deglutition were not greatly complained of. In such cases, it has been stated by some writers that pain renders the efforts at swallowing infrequent, but in my experience, on the contrary, there was an inclination to swallow; and patients were frequently, and apparently unnecessarily, attempting the process, though the saliva caused more uneasiness than anything else. The respiration, although referred to thus lately, was one of the most important symptoms. In thirty-four

cases laryngeal symptoms were present. The most of these were children from one month to six years of age. In many of these, the laryngeal were the first symptoms to attract attention, though probably not the first to be felt by the young patients. These were supposed by the parents to be cases of croup, until the nature of the disease was revealed to them. In fifteen of these cases there were no local indications of the disease when they were first brought under my notice; in the remaining nineteen, the local characters of the disease were evident on the tonsils, fauces, and velum. Along with the croupy breathing, there was a barking cough; the voice was variously affected, in some cases muffled and reduced to a whisper; great exhaustion was present, and the little patients often fainted during an examination of their mouth and throat. In one case of alleged croup that I was called to see, an infant one year old was the subject, and evidently moribund. This case occurring in the third week of the epidemic, there was little difficulty about the diagnosis, although no local lesion was seen. Twenty-four hours before, the child had apparently been well. Tracheotomy was proposed but declined, and the child died ten hours afterwards. While in the house, as a precautionary measure, I examined the whole family, and found four others of the children (all boys) affected with local symptoms, while they were barely complaining. These cases recovered. Several of this character were observed. With the exception of six cases, the pharynx ultimately was affected in all those cases where the larynx was the first seat of the disease. The local changes were very various. In all, there was a deep red glistening appearance of the tonsils and fauces, the parts being unequally turgid, one side being at first more affected than the other. Following this with remarkable rapidity, the exudation appeared in spots of different shades, remaining so in some, but in others, and more commonly, rapidly coalescing and forming a continuous layer over a large surface, which increased in thickness from day to day. The exudation in most cases was of an ash-gray colour, thick, leathery, and tough. In some, a yellowish patch, moulded to the surface and firmly adherent, was exhibited. The exudation in some disappeared after a few days' treatment, in others it continued more than a fortnight. The nasal passages were frequently affected; and profuse purulent discharges from the nares, both anteriorly and posteriorly, were common. In one severe case, on the sixth day, an abscess formed in one tonsil, which soon matured and discharged itself. At the commencement of the outbreak, one of the first six cases, a fine child, four years of age, presented severe laryngeal symptoms, the pharynx not being as yet involved. Unfortunately a small blister was applied on the top of the sternum, a practice common enough in ordinary catarrhal croup, but most prejudicial in diphtheritic croup. The abraded surface, on the following day, was covered with sloughs, and could not be healed. In this case, on severe

coughing, large pieces of thick, tough membrane were brought up; the fauces and tonsils became at length visibly affected; albumen was in great excess in the urine; and the child died of asthenia at the end of the third week. In another case, after the throat had considerably improved, the disease broke out on a varicose ulcer which had recently been under treatment and was nearly well. The ulceration extended rapidly under this new disease, and presented specific characters for more than three weeks. Relapses were common. In this particular, diphtheria also agrees with the other less contagious diseases, such as typhoid fever and erysipelas. A third attack occurred in a young lady, six weeks after the first, and four weeks after the second attack. The secondary attacks were usually not severe. The sequelæ were various, but could all be referred to the loss of nervous force. Difficulty in swallowing from partial paralysis of the pharyngeal muscles; extreme muscular weakness and pain in lumbar region, and lower extremities in particular; tingling and burning in the soles of the feet; anæmia, and atonic dyspepsia, were the most common.

Regarding the treatment adopted, more dependence was placed in the general than in the local. The general treatment was stimulating in the full sense of the term. Nutrition was directed to be administered assiduously night and day. Strong beef-tea, raw eggs beaten up, Liebig's extract of meat, and milk, were the principal foods. Port, sherry, and champagne, whichever was most agreeable, were given in wineglassful doses every three hours, day and night; and half that quantity to children. The medicinal treatment consisted of iron and chlorate of potash combined. The iron treatment was introduced by the brothers Mr Hamilton Bell of Edinburgh and Dr C. Bell. The form and mode in which it was administered was this:—As soon as a case came under my notice, I prescribed, for adults, ten-drop doses of the strong liq. ferri perchloridi, with ten to fifteen grain doses of chlorate of potash, to be taken in a wineglassful of water every two hours until decided improvement was evident, when the interval was prolonged. The dose was modified for children, of course. Vomiting was usually set up by the first two or three doses, but the patient, being warned of this, was instructed to persevere, and afterwards there was no trouble in this way. Constipation was rarely complained of, and when it did happen, a little glycerine added to each dose obviated the difficulty. The local treatment, which at first was employed, consisted of a strong solution of iodine, viz.:—Iodi, 48 gr.; potassii iodidi, 24 gr.; sp. vini rectificati, ℥j. This was painted on the affected parts of the throat daily, and seemed to be very useful. But finding the internal exhibition of iron so satisfactory, I adopted its local application also, in the following form:—Liq. ferri perchloridi and glycerine, in equal parts, which was brushed over the exudations daily. The glycerine helps to dissolve the slough, and the iron, I think, hardens the subjacent surface, and considerably

modifies further exudation. The means used for the treatment of the croupy cases were partly those which were successful in the first case, which was supposed to be croup, along with the general and local remedies already mentioned. Whenever laryngeal symptoms were observed, the patient was immersed in a warm bath for five or six minutes, then wrapped, undried, into a warm blanket, to induce free action of the skin, which was kept up by hot-water bottles placed round about. This was immediately followed by an emetic of sulphate of copper in five-grain doses to children, which usually induced free vomiting in the course of five minutes; the throat was then well swabbed with either of the local applications, and very soon the most harassing symptoms were relieved. If there was any return, the same treatment was repeated. The results were very gratifying indeed. In one case vomiting could not be excited by any means; but the strength, on the other hand, was well maintained, and the child recovered after two weeks' illness.

From a study of the foregoing; from the fact that idiopathic croup is not epidemic; that sporadic cases of diphtheria are known to occur; that diphtheria is known to have been mistaken for croup; and that laryngeal cases of diphtheria occur during epidemics, and hasten on to death in some cases, as I have shown, before pharyngeal changes become developed,—I am inclined to believe, with Sir William Jenner, Dr George Johnson, Dr Semple, and others, that membranous croup and laryngeal diphtheria are identical; and that idiopathic croup, properly so called, consists of two varieties, viz., the spasmodic non-inflammatory, and the simple catarrhal. The membranous form, which has hitherto been called idiopathic, I consider to be specific.

The relation that diphtheria and scarlet fever hold to each other may be here noticed. Previous to, and even during, the diphtheritic outbreak, scarlet fever of a mild type prevailed. Several persons, who had gone through an attack of scarlet fever within the previous twelve months, were attacked by diphtheria with varying severity. In one house, the residence of a gamekeeper, situated on a hill, five of the family were infected with scarlet fever; the fifth and last case, after having exhibited the scarlatinal eruption well, developed diphtheritic symptoms, both subjectively and objectively. There was a well-developed false membrane in the fauces, great depression, laryngeal stridor, frequent cough, and muffled voice, followed by partial paralysis of the lower extremities, and recovery. Further, scarlet fever broke out in two individuals who had recovered from diphtheria two months before. During the fever, the eruption of which was quite characteristic, diphtheritic exudation was reproduced in the throat, although no urgent symptoms were observed.

ARTICLE VI.—*Malta Fever.* By OSWALD G. WOOD, M.B., Surgeon, Army Medical Department.

THE form of disease known popularly as Malta fever, occurring in the little island whose name it bears, and very similar in its symptoms and results to the so-called rock fever of Gibraltar, is one little understood even by those who have had abundant opportunity of studying it in its own home. Its very type is still disputed, and not a few medical men deny its right to the title of being peculiar to the island.

Not long ago, a paper, by the pen of Professor M'Lean of the Army Medical School, Netley, on this subject appeared in the *British Medical Journal.* Dr M'Lean is inclined to regard it as belonging to the typho-malarial type, but I think experience hardly justifies such a classification. In the returns of the Army Medical Department, a wide difference of opinion regarding its classification unfortunately exists, it being returned by many under the head of simple continued fever; by some under the type of remittent; while by others, again, mild attacks of it are mentioned simply as cases of febricula. That it is as distinctly remittent in its type as enteric fever, seems to me almost certain, though in many cases the remissions are so short, and sometimes so early in the morning, that they are apt to be overlooked by one not actually residing with the patient. I would be inclined, therefore, for the sake of uniformity in returns, to allow the disease to retain the name with which custom has invested it, and classify it under the at present unacknowledged title of Malta fever. Were this done, we might then commence, with some reasonable hope of success, to investigate the real causes of this disastrous fever.

Causes.—The causes of Malta fever are more or less wrapt in obscurity. There are some who regard its origin as malarial; but surely it is scarcely credible that true malaria can exist in the dry and rocky soil of Malta; besides which, the result of treatment militates strongly against such a view, although some of the symptoms of the fever undoubtedly resemble those that would be produced by the action of malaria on the system.[1]

Others hold that the condition of the harbour must, to a large extent, bear the onus of being the cause of the disease, and there are many circumstances to give support to this opinion. Some twenty years ago, cases of Malta fever were comparatively unfrequent and mild in their type; indeed, it was by no means the formidable disease which it now is. Since then, the shipping in the harbour has increased, and from the almost tideless character of the Mediterranean Sea, the refuse incident to the continual

[1] The scirocco wind, which causes such unpleasant effects to be experienced by residents in Malta, is from the south-east, blowing from the Libyan Desert across Tripoli, and hence is not likely to be laden with malaria.

presence of numbers of ships accumulates, whilst the buoyancy of the water permits it to float near the surface, exposed to the direct and powerful rays of a semi-tropical sun. But the question naturally arises, Do no cases of Malta fever occur in parts of the island distant from the harbour? Experience answers that such cases do occur; indeed, the writer has attended a case of distinct Malta fever occurring in a child residing on the shore of the Marsa Scirocco, which is on the south-eastern coast of the island.

And now, the all-important question of sanitation remains to be considered, and here we have some solid foundation on which to base our theories. To a stranger landing in Valletta, the odour which greets his nostrils is positively sickening. To the stench from the filthy persons and equally filthy tatters of the garlic-eating natives is added, in many places, the smell of decomposing portions of fish, vegetables, etc., while streams of urine, escaping from small and confined urinals, flow down some of the well-worn steps and narrow lanes through which the public mostly have to pass to reach the spot where boats are to be obtained. I do not wish to give the idea that this state of matters exists in the more important streets, but the foulness of the by-streets must, of necessity, ultimately affect the residences occupied by the higher classes. Sanitary reform is sadly needed in this crowded island, and I trust that, ere long, something will be done to bring this "military hotbed" more under the rules of hygienic science. When the source of the water-supply (rain-water collected principally from the flat roofs of houses, and stored in large tanks sunk in the ground) is considered, I think most people will agree with me when I state my belief that one of the chief causes, if not the sole cause, of Malta fever, is the *unsanitary condition of the island.* This unsanitary condition is far from being confined to Valletta, but obtains in all the numerous villages which cover the island.

The immediate exciting causes of the fever seem to be two:—1st, a chill, which is a frequent occurrence, owing to the sudden and considerable fall of temperature after sunset, and the consequent heavy dews; and, 2d, in some instances long-continued exposure to the sun, as in the case of soldiers on a field-day.

Symptoms.—In its general symptoms and tardy convalescence, Malta fever closely resembles typhoid. There is usually a somewhat prolonged premonitory stage, marked by a condition of general malaise, languor, and depression of spirits; but, as all these symptoms may be produced simply by the prevalence of a scirocco wind, they often pass unnoticed. After an uncertain length of time follows either a distinct rigor or a series of oft-repeated sensations of chilliness, accompanied by severe headache (this more especially when exposure to the sun appears to have been the exciting cause), anorexia, great thirst, and obstinate constipation, together with a flabby tongue covered with a white creamy fur. This condition frequently lasts for several days, with

little or no change in the symptoms; in some cases, however, a simultaneous rise in the pulse and temperature occurs, coincident with, or immediately succeeding, the first rigor. The former seldom measures less than 110 beats per minute, the latter rapidly attains the height of 103° to 104° F. The difference between the morning and evening temperature is usually about 1° F. more or less; but in severe cases this difference requires often to be carefully watched for, as it is very apt to be overlooked. In the height of the fever the temperature seldom exceeds 105·5°.

With the commencement of the high temperature appears, in most cases, a distressing and often a troublesome symptom, viz., vomiting, often accompanied by considerable tenderness in the epigastrium. This vomiting occurs sometimes only after taking food, at other times either on a full or an empty stomach indiscriminately, the vomited matter in the latter instance consisting of large quantities of bile. In a few days, in most cases, diarrhœa, with griping pains in the abdomen, sets in. Whether this be considered as a symptom or as a complication, it is a matter of grave importance, often proving most troublesome to check. If it be merely a complication, it is certainly a very frequent one; if a symptom, it may prove to be of no mean importance in throwing light on the etiology and pathology of the disease. The type of this diarrhœa varies somewhat. In some cases the stools, nearly always dark in colour, are watery, slimy, and fœtid, and are passed without effort—sometimes, indeed, involuntarily; in other cases the stools are thick, black, and tarry, passed with a good deal of straining, and sometimes even tinged with blood, though I am not aware that any false membrane, such as is formed in dysentery, has ever been found in them. In one case which I had the opportunity of watching (through the kindness of Surgeon-major Carey of the 101st Fusiliers), pure blood, unmixed with fæcal matter, kept oozing constantly from the bowel for, I think, nearly two days previous to the patient's death, in spite of all efforts to restrain the hæmorrhage. In this case, the bleeding was found to proceed from several ulcers in the upper part of the large intestine.

The patient attacked by diarrhœa generally suffers much from flatulent distension of the bowels, and there is, on palpation, a good deal of tenderness, and even gurgling, in the right iliac region, which, however, usually extend more or less over the whole tract of large intestine. In some cases, especially in children, these abdominal symptoms are entirely absent, and replaced by obstinate constipation. In a few cases, the stools assume the appearance and consistence of those characteristic of enteric fever.

About this period of the fever, there is often a good deal of delirium of the typhoid type, tending to lapse into coma. Not unfrequently, previous to the onset of the diarrhœa, there is a sort of lull in the symptoms. This lull occurs generally about a week or

ten days from the commencement of the fever, and, from the temporary return of appetite and general appearance of improvement in the patient's condition, it is apt to tempt the physician to allow an imprudent change in diet, which occasionally proves to be the immediate cause of the diarrhœa.

About the end of the second week of the fever, or the beginning of the third, and in a few cases at a much earlier period of the disease, some bronchial cooing becomes audible, on auscultation, all over the chest; and a little later, evidences of congestion of the bases of both lungs become apparent. In some cases this congestion passes into pneumonia, sometimes double, more often single. The liver is commonly somewhat congested and enlarged, and the area of splenic dulness increased; but I have not, in my experience, found, even in the worst cases, that marked enlargement of the spleen mentioned by Dr M'Lean in support of the theory of the malarial origin of the fever.

The general condition of the patient is that of extreme depression or even apathy, but of course the degree of this state depends greatly on the natural temperament of the sufferer. The sleep, as might be anticipated, is broken, and usually haunted by frightful dreams. There is seldom any complaint of headache, but the patient is extremely sensitive to noise. He lies sunk low in bed apparently dozing, but oftentimes the busy brain is all the while engaged rehearsing familiar scenes, or haunted by well-known words or tunes—in my own case, the ominous "Dead March in Saul" constantly ringing in my ears. The hands are tremulous. The pulse varies from 120 to 130, irritable and compressible. The tongue is coated with a thick brown or black fur, and the teeth in some instances become covered with sordes.

In fatal cases, death, preceded by coma, appears to be commonest at this stage of the disease, though it sometimes occurs much earlier—some patients, indeed, succumbing in the course of ten or twelve days.

In cases of recovery, amendment is very slow and uncertain, relapses being common. The more urgent symptoms gradually disappear, the high pulse and temperature, however, being very persistent; and even when convalescence is fairly established, and the morning temperature is normal, there is for a long time a decided return of the fever in the afternoon or evening. The ravages of the fever now become more than ever apparent, the thin pinched features and wasted limbs, even after comparatively mild attacks, proving the severity of the disease. The appetite in some instances rapidly returns, but in most cases it is very slowly re-established; and in the hot season a change to a cooler climate is almost imperative to ensure convalescence.

Sequelæ.—And now, supposing convalescence to have begun, the morning temperature being normal or only slightly in excess, an almost constant and intensely painful sequela appears—rheumatic

and neuralgic pains in the soles of the feet. These pains are often accompanied by slight touches of rheumatism in various joints, but the acuteness of the pain in the feet veils for a time these slighter sources of annoyance. This stage of rheumatism varies very greatly in different cases, in some lasting only for two or three days, in others continuing with more or less severity for weeks. When the pain in the feet has been at all severe, the first sign of improvement is commencing desquamation of the cuticle of the affected part; common sensation remains impaired in the feet for a long time; while, on the other hand, the slightest touch causes not only greatly exaggerated reflex movements, but even absolute pain, the mere weight of the bedclothes being sometimes unendurable. In my own case, after a sharp relapse of the fever, the stage of rheumatism in the feet was prolonged to an unusual length of time. When recovery at length commenced it was very gradual, and its course somewhat interesting, as seeming to give some colouring to the malarial theory of the disease. During the morning and forenoon the temperature of the body became either natural, or nearly so, and the pain in the feet slight; but every afternoon between three and four o'clock the temperature began to rise, and the pain to become severe. As convalescence proceeded, the afternoon exacerbations of pain recurred only every alternate day, and although the temperature rose every afternoon, the rise was not so great on the painless days. Nearly two months after the feet had recovered, and when the fever seemed to have left me, I was laid up with a rather severe attack of sciatica, when the fever returned, recurring daily about four o'clock in the afternoon, and usually being ushered in by a rigor more or less distinct, and sometimes of considerable duration, followed by a hot stage, and terminating during the night in a copious perspiration; a periodicity seeming thus to have been stamped on the constitution, just as it is after an attack of a malarial fever.

During and for a considerable time after recovery from this rheumatic stage the feet are swollen and œdematous, and covered with a disagreeable cold sweat. The innervation is greatly impaired, so that the floor when pressed by the feet feels like a bed of moss, or rather the impression conveyed to the brain is that of uncertainty as to the solidity or stability of the spot trodden on. These symptoms, which I experienced myself, were not so marked until I was suffering for a second time the rheumatic stage, after a severe relapse.

Another interesting symptom (whether common or not I do not know), which lasted two or three days and passed off gradually, was that of general cutaneous hyperæsthesia, insomuch that I could scarcely bear the weight of my own hand to rest on any part of my body.

The rheumatic stage may be prolonged indefinitely by the various joints in succession being attacked; and sciatica and neuralgia are no uncommon sequels to the disease.

The long continuance of the high temperature in some cases has often been noticed, and, as an example, I can scarcely quote a better case than my own. I took the disease towards the end of April, had a relapse about the middle of June, and until the end of October I was subject to occasional nocturnal returns of the fever; and mine is no solitary case.

The shock to the nervous system after severe attacks is considerable. The memory for some time remains much impaired, especially, I have noticed, with regard to names and dates, or rather the chronological order of events; and the tremulous condition of the hands persists. The power of concentrating ideas, or following out a train of thought, is temporarily destroyed, and only very slowly returns. A good deal of weakness of vision is suffered from, but this is not so persistent a result.

The pulse continues quick and irritable, and if sitting up be too soon attempted, there is considerable danger of syncope. As after most severe fevers, the hair falls out greatly.

These numerous sequelæ, of course, follow chiefly only severe cases, but even after mild attacks the whole system is found to have sustained a considerable shock.

It is long ere health and strength are thoroughly re-established, and relapses of the fever are very common.

Morbid Anatomy.—Of the morbid anatomy of Malta fever there is not very much to be said. The principal organs which are commonly found to be the seat of morbid action are,—1st, the intestines; 2d, the spleen; 3d, the lungs; 4th, the liver.

1st, *The Intestines.*—In most fatal cases diarrhœa has been a prominent symptom, and we may therefore expect to find some appearances to account for it. Accordingly we commonly find lesions in the large gut.

The small intestine is usually more or less congested, the congestion being sometimes pretty equally diffused, at other times almost confined to the lower half of the jejunum and the ileum. Peyer's patches and the solitary glands are occasionally somewhat enlarged and prominent, but often they are quite unaffected.

When we come to the large intestine, however, the appearances are more marked. The caput cæcum is generally very deeply congested, and frequently covered with ulcers, some small and circular, others large and ragged, the latter being due to the coalescence of several small ones. The rest also of the large intestine is congested, deeply so in the rectum, and the whole tract is often covered by numerous small ulcers, inflammation and subsequent ulceration of the glands of the large intestine apparently being the chief characteristic of the disease. In the case to which I have referred, where extensive hæmorrhage preceded death, the whole of the great intestine was found to be filled with fluid blood, which appeared to have proceeded from several small but deep ulcers situated about the commencement of the ascending colon.

The caput cæcum was extensively ulcerated, the mucous membrane being thickened and infiltrated.

The ulcers in the rectum are frequently more numerous than those in the cæcum, but scarcely so extensive superficially.

In some cases the lesion characteristic of enteric fever may be found in addition to the affection of the large intestine.

2d, *The Spleen*.—This organ is always found enlarged to a greater or less extent in Malta fever, being sometimes soft and friable, at others not much altered in its consistence. In some cases this enlargement continues long after convalescence is established, but more commonly it subsides with the fever.

3d, *The Lungs*.—The lungs are usually found to be deeply congested at the bases, or may even present the appearances of pneumonia, though no marked symptoms may have existed during life. The bronchial mucous membrane is almost invariably injected.

Of course many other conditions of the lungs may also be found, such as pleurisy, etc., but they are not so common, except as sequelæ.

4th, *The Liver* is very frequently enlarged and congested, and the gall-bladder distended with thick bile.

As in other fevers, other organs besides those mentioned may be affected, as congestion of the brain, with perhaps effusion into the ventricles, etc.; and the surface of the body often presents the appearance of bed-sores, or threatened bed-sores, while discoloured spots visible during life, and great cutaneous hypostasis after death, indicate the weakness of the circulation and the vitiated condition of the blood.

Treatment.—Until the causes of this fever are more fully understood, we can scarcely hope to strike at the root of the evil; at present, we must content ourselves with enjoining a strict attention to the drainage and water-supply of all barracks and private residences, combined with scrupulous personal cleanliness, and, as far as possible, the avoidance of chills or undue exposure to the sun during the spring and summer months.

The only principle on which we can treat this fever is the rational one of supporting strength and combating symptoms as they arise. In the early stage of the disease we should move the bowels by some mild laxative, such as castor-oil, and then act gently on the skin and kidneys. A hot bath, except, perhaps, at the very commencement of the disease, is scarcely to be recommended, as the depression produced by the fever is so rapid, that we would place the patient in danger of syncope, or excessive prostration, by the employment of so powerful a relaxant.

To relieve the sickness, a draught of morphia and hydrocyanic acid, repeated occasionally, or sometimes a few minims of chlorodyne, generally prove useful. Effervescing draughts are often tolerated by the stomach when all other medicines are rejected,

and the liq. ammon. acet. may be given in this way as a diaphoretic.

In the diarrhœa, where the ordinary vegetable astringents have failed, as is frequently the case, I have found nothing of more service than the pernitrate of iron, given plain, or in bitter infusion (liq. ferri pernit. ♏xv. to xxx.) This remedy not only acts as an astringent, but also supplies iron to the vitiated blood. Opiate enemata are very effective in checking the diarrhœa, and are usually extremely grateful to the patient. Where there is much tenderness in the bowels, turpentine stupes may be advantageously employed. If it be desired to try quinine, the best method that I know of for administering it is in powder with a little pulv. acaciæ; but this drug appears to possess no remedial properties in this fever. Dr M'Lean has suggested the use of ipecacuan in Malta fever, and in the early stages it might prove beneficial as a blood depurant; but, considering the great gastric irritability, I doubt whether the remedy could be effectually employed. However, as I have had no experience of the drug in this fever, I am not competent to offer more than an opinion as to its utility. It certainly would be worth a trial.[1] Arsenic has also been proposed, and it was tried on myself when suffering from the dregs of the fever; but it produced such gastric disturbance that I had to abandon its use before it had received a fair trial.

From these remarks, it will be seen that careful nursing is by far the most important agent at our disposal. Food should be administered in severe cases not less frequently than every two hours, and the patient should be enjoined to make an effort to retain it. This sometimes can be done, especially in the case of nervous women, who, expecting the sickness, will scarcely rest content until the stomach has evacuated its contents. Of course, solids should be avoided as less digestible and apt to excite and keep up the diarrhœa. One of the best methods of administering nourishment is in the form of egg-flip (milk Oss., one egg, brandy ℥ss., sweetened to taste), and this will often be retained when all else is rejected. When possible, concentrated beef-tea or chicken-broth should alternate with the egg-flip, and their administration should be continued in bad cases regularly during the night. This I believe to be of the utmost consequence, even though it should be necessary to arouse the patient for the purpose. In most severe cases, stimulants ought to be freely exhibited. Iced Moselle and soda-water as an ordinary drink may be given where much stimulation is required, and I can personally testify to its value, not only in slaking the burning thirst of the fever, but also in allaying to a considerable degree the irritability of the stomach; but where the object is simply to allay thirst, lemonade made from the fresh juice of the fruit, or milk well diluted with lime-water, ought to be given; the plain water should as much as possible be avoided.

[1] Compare Davis on Walcheren Fever, p. 138. Extract from Hoffman.

Care should be taken in severe cases that the patient be not allowed to rise to stool; the bed-pan should invariably be used until all danger of syncope be past.

The return to solid food must be gradual, and the general precautions with regard to diet the same as after enteric fever.

Complications and sequelæ should be treated as they arise, and the chest ought to be frequently examined.

Where rheumatism in the soles of the feet is severe, I know of no remedy more serviceable than cold-water bandages, and the internal use of iodide of potassium, given cautiously.

Convalescence should be carefully watched, and due precautions taken against the danger of a relapse. The question of change of climate, and the period of convalescence at which it would prove most beneficial, must be left to the discretion of the medical attendant in each individual case, and is not always an easy one to decide. To send a patient subject in health to the *mal-de-mer*, on board ship in the early part of his convalescence, is to endanger his life from absolute inanition, especially if the appetite at the time of embarkation be at all capricious; not to speak of the danger of chills, which are unavoidable in a sea-voyage; but, on the other hand, to retain a patient in the island when perhaps the weather is growing hotter and more unhealthy every day, and preventing the appetite from returning satisfactorily, is to place him in danger of an imperfect recovery, which may necessitate his removal to England at a more unfavourable time of year for a sea-voyage. A voyage by sea, however, is in most cases to be preferred to the route by Italy, as the fatigues of railway travelling, and risks of draughts, damp beds at hotels, etc., would be much more likely to prove hurtful than two or three days of sea-sickness.

Remarks. — Throughout this sketch of Malta fever, a close resemblance to enteric may be traced. In many points it curiously resembles that form of typho-malarial fever which attacked our troops and proved so fatal in the Walcheren expedition of 1809; and it is somewhat interesting to compare the hour at which the fever used to return during my convalescence in England, with the following remark, which relates to the Walcheren fever as it appeared at Ipswich:—"By far the greater number of paroxysms attacked about four or five o'clock, a period when quotidians, according to Dr Jackson, have been observed to come on in Jamaica."[1] However, intermittent fever proper is not developed in Malta, and as we know that malarial remittents are simply due to the miasm being highly concentrated, we can scarcely believe that true malaria can exist without producing the milder as well as the more severe forms of disease. Indeed, the more we consider the symptoms and pathological conditions of Malta fever, the more convinced, it seems to me, we must feel that it is merely a form of

[1] A View of the Fever of Walcheren, and its Consequences, p. 16. By J. B. Davis, M.D. 1810.

enteric fever, where the glands of the large intestine, instead of those of the small, are the most affected. If this be the case, a more rigid observance of the laws of hygiene is imperatively called for, while every tank of water used for domestic purposes ought to be examined from time to time, and an analysis of its contents reported to the authorities. The only way to effect this would be to divide the island into sections, and place each section under the supervision of a medical officer of health, whose sole duty should be to attend to the sanitary conditions of his own section. Until some such step be taken, we can scarcely hope to maintain the health of our troops in this important station, or of the numerous British residents who continue annually to flock thither for the winter.

I trust that this imperfect sketch of Malta fever may meet the eye of some one whose experience of this formidable and disastrous disease may induce him to give us a fuller and more accurate description of it, and his views with regard to its prevention and its cure.

In conclusion, I would venture to suggest that some such plan as the following, reduced to a tabular form, might prove useful to any officer of the Army Medical Department who is anxious to investigate more thoroughly the causes of Malta fever, and a modification of it could be readily adapted for the use of civil practitioners.

Regiment. Regimental number. Rank and name. Married or single. Age. Total service. Total foreign service. Malta service.

Occupation previous to enlistment. Special duties at present (such as officer's servant, regimental tailor, etc.).

Barracks or quarters. Company or battery. Number of barrack room.

Number of nights in bed.

Health of company, regiment, and neighbourhood.

Length of time in neighbourhood. Where previously.

Sanitary condition of quarters and neighbourhood.

Source of water-supply. Quality. No. of tank. Analysis of water.

State of weather. Prevailing winds. Thermometer. Barometer.

Previous medical history of patient.

Social habits of patient.

General temperament of patient, and nationality.

Apparent or assigned cause of fever.

This form requires no explanation, and its use would entail little extra trouble on medical officers.

Finally, may we not venture to hope that by judicious sanitary reform, Malta may become, in the course of a few years, one of our healthiest, if not one of our most agreeable, military stations and winter health-resorts?

ARTICLE VII.—*Sclerosis in Scattered Patches.* By Prof. CHARCOT, La Salpêtrière, Paris. Translated by THOMAS OLIVER, M.B., Preston, with M. Charcot's permission.

(*Continued from vol.* xxi., *page* 1020.)

PART II.—*Symptomatology.*

Summary.—Variety of Appearances of Sclerosis in Scattered Patches from a Clinical Point of View—Causes of Error in Diagnosis.

Clinical Examination of a Case of Sclerosis in Patches.—Of the Trembling: Modifications which it imprints on the Handwriting: Characters which distinguish it from the Trembling of Paralysis Agitans, of Chorea, and General Paralysis, and the Motor Incoordination of Ataxy.

Cephalic Symptoms.—Disturbances of Vision: Diplopia, Amblyopia, Nystagmus—Embarrassment of Speech—Vertigo.

State of Lower Members.—Paresis: Remissions—Absence of Disturbance in Sensation—Mixture of unusual Symptoms: Tabetic Symptons: Muscular Atrophy—Permanent Contraction—Spinal Epilepsy.

WE have minutely described, in the preceding lecture, the anatomical lesions of multilocular sclerosis of the nerve-centres. Setting aside this part of its history, we are going at present to make known to you the group of symptoms by which it is revealed.

I.—It is remarkable that a morbid condition which possesses an anatomical substratum so striking and so marked, and which, in short, is not rare, should have escaped clinical analysis so long. Nothing is more simple, however, as I hope to show you, than to characterize at the bedside of the patient the affection in question, at least when it presents itself in its type of complete development.

If we try to discover what have been the causes which may have retarded the appearance of sclerosis in scattered patches in the systems of nosology, in which it ought to take its place by the side of other, better known, forms of primitive sclerosis of the nerve-centres, it is expedient, in the first place, to point out the variety of aspects under which, in the clinique, it is possible to meet with it: it is, in reality, a polymorphous affection by pre-eminence.

The anatomico-pathological study might have caused us to anticipate that it would be thus. You remember that the patches or the islets occupy sometimes exclusively the spinal cord; that, at other times, they predominate in the hemispheres and in the bulb; that, in fine, there are cases in which they are scattered at the same time through all the departments of the nerve-centres. These varieties of position have led us to recognise, in an anatomical point of view, the three following forms:—*Cephalic form, spinal form, mixed or cerebro-spinal form.* It was easy to foresee that to each of these forms would correspond an aggregate of peculiar symptoms.

Let us concentrate, in the first place, if you please, our attention upon the cerebro-spinal form: it is, besides, in all respects the most interesting, the one you will have to observe most frequently in practice. Well, even considered in this single type, the affection may put on very various masks. Allow me to quote to you, in support of this assertion, an anecdote which, quite recently, one of my colleagues related to me.

One of the most distinguished physicians, but still little familiar with the symptomatology of sclerosis in patches, had come to visit him whilst in the discharge of his clinical duties of which he has at present the direction. To do him honour, my colleague presented to this physician a case of the new malady: it was a very beautiful specimen of the cerebro-spinal form. The patient, leaving his bed, took a few steps in the ward—"He is suffering from *ataxy*," exclaimed the visitor. "Perhaps," replied my colleague; "but what do you think of the rhythmic movements with which the head and upper extremities are agitated?" "Just so," remarked the visitor; "there is *chorea* besides, or perhaps *paralysis agitans*." The patient was subsequently interrogated. He replied to questions with a very marked embarrassment in his pronunciation, scanning the syllables in quite a special manner, and often the utterance of the words was preceded by a slight quivering of the lips. "I understand," replied the physician: "you have wished to confuse me by showing me one of the most complicated cases. Here are now symptoms which belong to *general paralysis*. Let us go no further. Your patient perhaps combines in himself the whole round of nervous pathology."

Now, I repeat, it was simply a case (very complete, it is true) of the cerebro-spinal form of sclerosis in patches.

Paralysis agitans is especially the disease with which this form of sclerosis in patches has been for the longest period, and is still, without doubt, most frequently confounded. Accordingly, it is with this motive, at the time when we endeavoured to separate sclerosis in patches from the chaos of chronic myelites, that we induced M. Ordenstein, then our pupil, to compare, point by point, this affection with paralysis agitans, in order to exhibit more clearly the contrast. We know how M. Ordenstein has acquitted himself of this task, and I do not hesitate to say that his dissertation marks an important progress in the clinical treatment of chronic diseases of the nervous system.

In these latter times, M. Bärwinkel, a distinguished physician of Leipsig, after having reported a very interesting example of cerebro-spinal sclerosis, but in which the trembling appears to have been absent, as is sometimes seen, seems to imply that M. Ordenstein has created at pleasure difficulties which do not in reality exist, in order to give himself the easy satisfaction of surmounting them. According to him, there would be no analogy between the two diseases. M. Bärwinkel will have, without doubt, forgotten that,

in the *Canstatt's Jahresbericht*, he has published, ten years ago, the analysis of a case observed in Skoda's clinique—a case in which the diagnosis, *paralysis agitans*, had been made during life, and that, at the autopsy, they found patches of sclerosis scattered over all parts of the cerebro-spinal axis. The phenomenon observed appears to have been described with great fidelity. It is there said (and that is a point deserving special attention), that the trembling, contrary to that which occurs in ordinary paralysis agitans, shows itself only at the time of voluntary movement, and ceases in the state of repose.

M. Bärwinkel did not fail either to take cognisance of the fact related by M. Zenker in Henle's journal: it was again the autopsy which revealed in this case the existence of multilocular sclerosis. During life Prof. Hasse had established the diagnosis paralysis agitans, and yet they insist, in the symptomatological description, upon the nature of the trembling, which was produced only under the influence of the emotions, or on the occasion of voluntary movements.

These examples suffice, I think, to show you that, in spite of the opinion of M. Bärwinkel, confusion is possible, because it has occurred with clinical teachers whose ability is beyond all question.

That being granted, I am the first to admit that the various disguises assumed by sclerosis in patches are coarse disguises, and that, at the present day, when recent works have made the diagnosis clear, it is hardly excusable to be misled by them. But it is now time to enable you to distinguish the characters by the aid of which we can separate cerebro-spinal sclerosis from the diseases which are more or less akin to it.

II.—You are not ignorant of the worth of diagnostic observations, eloquently expressed, away from the sickbed. They hardly succeed, whatever one may do, except in presenting pictures without relief, and which, in general, leave on the mind of the hearer only a vague and transient impression. In order to avoid, as much as possible, falling into the error which I have just pointed out, I now proceed before you with the examination of a patient who offers collectively, in their most perfect development, all the symptoms of cerebro-spinal sclerosis in patches.

Miss V., aged 31 years, has been for nearly eight years affected with the disease which constitutes the object of our present study. Admitted into the Salpêtrière three years ago, she was handed over to me by M. Vulpian when he left this hospital, and he placed in my hands at the same time, with regard to her case, a very detailed and valuable record. It began, let us say, eight years ago, so it is already a chronic case. I shall speak to you soon of the different metastases which have ushered in the early phases of the evolution of the symptoms. For the present, I wish to confine myself to the analysis of the phenomena of the actual state.

A symptom which has, without doubt, struck you all at the first glance when you saw the patient enter, supported by an assistant, is without question the decidedly peculiar rhythmic *trembling* with which her head and limbs were violently agitated during her progression.

You have also noted the fact that, when the patient was seated on a chair, the trembling disappeared completely from the upper and lower extremities, but in part only from the head and trunk. I insist upon this last point, remarking that the new attitude assumed by the patient is far from being equivalent to one of absolute repose, as far as the muscles of the trunk and neck are concerned. Besides, it is necessary to take into account the emotions, which unquestionably play here a certain part. I shall have occasion to present to you Miss V. in bed, and at that time, left to complete repose, you will be able to assure yourselves then of the absence of every trace of trembling in the various parts of the body. To cause the reappearance of the rhythmic agitation throughout the body, it will be enough to induce the patient to rise from her seat. To cause its reappearance only in a partial manner, I am going to ask her to carry to her mouth a glass previously filled with water, a spoon, etc. You can recognise that, in these varied acts prescribed by the will, the quivering is so much the more marked as the movement executed is more extensive. Thus, when the patient wishes to carry to her lips the glass filled with water, the rhythmic agitation of the hand and forearm is at first, at the moment of prehension of the glass, scarcely exhibited, but it increases progressively in proportion as the glass approaches the lips; this is so to such a degree at the moment when the object is about to be attained, that the teeth are, as you see, struck by the walls of the glass with violence, and the liquid thrown to a distance. This great disorder does not manifest itself except in the case of movements of a certain range. If there be question of small exertions—of sewing, of fringing linen—the oscillations are, on the contrary, almost *nil*. Some time ago the patient could write still very distinctly; the characters were tremulous, it is true, but after all perfectly legible.

To recapitulate: the *trembling* of which we speak *does not show itself except on the occasion of intentional movements of a certain extent; it ceases to exist when the muscles are left to complete repose.* Such is the phenomenon which I have been led to consider as one of the most important clinical characters of cerebro-spinal sclerosis in patches. Certainly I do not presume that it is a pathognomonic symptom. I am perfectly aware that a trembling presenting itself with almost similar characters is sometimes observed in affections other than sclerosis in patches; for example, in mercurial poisoning, in chronic cervical meningitis with sclerosis of the cortical layer of the spinal cord, in primitive or secondary sclerosis of the lateral columns, etc. It is not, as we shall see, a constant symptom.

But what I am anxious at present to bring out is, that, in sclerosis in patches, when no complication has supervened, the trembling, however little it may be, always presents itself with the characters which I have assigned to it. In short, it is a symptom which, by itself alone, would enable us to separate clinically multilocular sclerosis of the nerve-centres from affections which approach it sufficiently for confusion to be possible. I shall enter on this subject into some details.

The trembling of *paralysis agitans* exists during the period of repose of the limbs, as well as when they are put into motion by the will. I bring before you a woman, in whom the trembling has persisted for many years without truce, in the waking state. It only stops when this unfortunate sufferer is buried in deep sleep. There are cases in which, in paralysis agitans, the trembling shows itself only intermittently; but it is a remarkable fact that, in such, it is rather at the time when the members are in repose that it shows itself, to cease when they are set in motion by the will. You may notice, in a second patient whom I offer to your observation, this peculiar character of the trembling of paralysis agitans. You will observe, besides, in these two women, that the head takes no part in the trembling, or if it appears agitated by oscillations, they are evidently communicated to it: it is a case of transmission of the shocks, of which the members and the trunk are the seat. The absence of trembling of the head seems to me to be a fact almost general in paralysis agitans. I will add, that, in this affection, the shocks of the trembling are much less extensive, more regular, more rapid, closer, if I can so speak, than in multilocular sclerosis. In the latter, the oscillations are wider in range, and approach in many points the gesticulations of chorea. This analogy is so marked, that, before the publication of the works which gave an impetus to its clinical study, sclerosis in patches has sometimes been designated under the names of rhythmic chorea, choreiform paralysis.

Yet, it is always easy to distinguish the inordinate and whimsical movements of *chorea*, properly so called, from the rhythmic oscillations of multilocular sclerosis. Let us remark, in the first place, that, in this latter, if, for example, the upper limb is in the act of carrying the hand to the mouth, *the general direction of the movement persists in spite of the obstacles occasioned by the shocks of the trembling*, shocks which, as we said an instant ago, increase in proportion as the hand approaches the object. In chorea, on the contrary, the *general direction of the movement* would, in the accomplishing of this same act, be *disturbed from its commencement, by absolutely contradictory movements*, of an extent altogether disproportionate, *and which prevent the patient effecting his object.* Let us add, that the movements of chorea are shown suddenly, unexpectedly, and at a time when the limbs are in a state of complete repose. Thus, without any intervention of the will, you see

the choreic put out his tongue, make a grimace, raise suddenly one of his limbs, etc. Now, no such thing is ever observed in multilocular sclerosis.

When, in *progressive locomotor ataxy* (sclerosis of the posterior columns), the upper limbs are affected, there are produced in them, on occasion of intentional actions, incoordinate movements which recall, to a certain degree, the gesticulations of chorea and the trembling of multilocular sclerosis. The following are the characters by which confusion may be avoided. It is necessary to note, at the very outset, that, in the incoordination of ataxic patients, there does not exist, properly speaking, any trembling, any rhythmic shocks, but rather gestures, more or less irregular, more or less abrupt, and more or less extensive. Study with care, in the patient whom I present to you, the movements of the hand in the act of seizing an object of small size, and you will recognise in them really distinctive peculiarities. You will see how, at the moment of seizing the object, the fingers separate disproportionately and spread to excess, inclining towards the back of the hand. Then the object is seized suddenly, disproportionately, and in an almost convulsive manner, by a sudden and inordinate bending of all the fingers. That belongs to ataxy; you will never observe anything similar in sclerosis in patches. I add, finally—and this last character is truly decisive—that, in ataxy, the closing of the eyes has always as its effect the increasing in a very marked manner of the incoordination of the movements, whilst it does not modify in any respects the rhythmic shocks of multilocular sclerosis.

We ought not to forget, however, that some of the symptoms of ataxy are sometimes found intermingled with those of sclerosis in patches, when the sclerous islets occupy a pretty considerable extent upwards of the posterior columns in certain regions of the spinal cord. A case, the history of which is found recorded at length in the "Atlas of Pathological Anatomy," by M. Cruveilhier, may be cited as an example of this kind. The person concerned is a woman of the name of Paget. The patient, in order to seize and direct a pin, required the aid of sight, without which the pin slipped from her fingers. At the autopsy, they found one of the sclerous patches occupying the posterior columns to a considerable extent in the cervical enlargement. For the present, I do not wish to dwell longer upon this point, as we shall have more than one opportunity of recurring to it.

We have been occupied till now almost exclusively with the trembling in so far as it affects the upper limbs; but we know already that it may agitate the head, the trunk, and the lower limbs. It presents itself in these various parts with all the characters which we have pointed out when speaking of the upper limbs; that is to say, though absent during complete repose, this trembling is manifested on the occasion of intentional movements, or in the attitudes which can only be maintained by the aid of

active and more or less energetic tension of certain muscles, or groups of muscles.

In order to complete what relates to this symptom, we ought to enter into some details. It is, as I have a long time since announced, a symptom almost constant in the cerebro-spinal form of sclerosis in patches. Yet, it is necessary not to forget that there exist exceptional cases with regard to this form, and in which—a circumstance altogether inexplicable until now—the trembling has not figured in the aggregate of symptoms. I have personally observed several cases of this kind. But we must not forget that trembling may have existed, in a degree more or less marked, at a certain period of the disease, and have disappeared during the time in which the subject comes under our observation. It is important, then, in this respect, to interrogate with the greatest care the patients in whom this symptom seems to be awanting.

It is the rule that the trembling disappears at the time when the limbs are made motionless (at a more or less advanced period of the disease) by permanent contraction. If it is true that the trembling appears sometimes almost at the outset, it is necessary to remember that it is, notwithstanding, a late symptom. Finally, it is a very frequent, almost a habitual, fact, that the trembling does not last so long as the disease itself: it decreases in proportion as the patients become weaker, and it now and then completely disappears at the period of fatal termination.

(*To be continued.*)

ARTICLE VIII.—*Cases of Paraplegia.* By T. GRAINGER STEWART, M.D., F.R.C.P.E., Physician to the Royal Infirmary, and Lecturer on Clinical Medicine and on the Practice of Physic, Edinburgh.

(*Read before the Medico-Chirurgical Society of Edinburgh, 7th June.*)

NOTWITHSTANDING the attention which has been devoted to the study of paraplegia, cases frequently occur which are not readily referable to any of the recognised types of the disease. As such cases cannot be expected to recur very frequently in the practice of any one physician, it seems desirable to record even isolated examples, with a view to the ultimate elucidation of their nature by comparison with others. Moreover, there is reason to fear that cases, even of the well-recognised types, are sometimes allowed to go on without proper treatment until they become hopeless, and that, on the other hand, treatment is sometimes abandoned in despair while yet it might be applied with success. It therefore seems important that the results of treatment should be laid before the profession, in order that the knowledge of the most successful

methods may become more widely diffused. Influenced by these considerations, I purpose to bring under the notice of the Society a group of cases which are interesting for one or other of the reasons indicated.

CASE I. *Paraplegia from Pott's Disease of the Vertebræ. Treatment by Rest, Mechanical Supports, and Tonics. Recovery. Relapse after prolonged violent exertions. Treatment as before. Recovery.*

In the summer of 1870 Thomas Smith, a sailor, 28 years of age, began to feel pain about the seventh or eighth dorsal vertebra, with stiffness in the back and unfitness for active exertion, but he contrived to follow his occupation till October, when he was necessitated to remain on shore, by reason of the severity of the pain and of loss of power in the legs. These symptoms gradually increased, and were attended by jerking of the limbs, but not by any marked affection of the bladder or bowel, until, on the 9th of March 1871, he was carried into my wards in the Royal Infirmary. He was a fair-complexioned, wiry-looking man, free from fever. He complained of pain extending from just below the eighth dorsal vertebra, round to the front of the body, but most severe in the epigastrium. This pain, though generally dull and constricting, was sometimes sharp and lancinating, especially when he moved, when he assumed the erect position, or when the weather was cold and damp. The legs felt cold, but were free from pain, formication, or numbness. The sensibility to all kinds of impressions was normal. The reflex action produced by tickling the feet was rather exaggerated. Voluntary motion was impaired in the legs, especially in the right one. When lying in bed some slight and feeble movements could be accomplished, but when he attempted to stand the power gradually passed away, and in a few seconds he fell. It was impossible for him to walk. The muscles of the legs were fairly nourished. Their electro-contractility was normal, but they were frequently disturbed by involuntary spasmodic jerkings. There was an acute curvature of the spine at the level of the seventh or eighth dorsal vertebra; but there was no sign of abscess in connexion with it, and the patient was free from fever.

The diagnosis in this case was obvious, viz., paraplegia, due to pressure exerted upon the anterior columns of the cord by the bag of debris resulting from the destruction of the bodies of the vertebræ.

The treatment adopted was rest, which was obtained by remaining in bed, and by using a mechanical support whenever the patient assumed the erect posture; the administration of cod-liver oil and of iron; and the regular faradization of the nerves and muscles of the legs. The instrument for support was constructed by Mr Gardner, and was designed to take the weight of the shoulders and head off the spine. It consisted of a firm girdle base, resting upon the sacrum and the iliac bones; from each side there arose a

steel rod, terminating in a crutch, which reached the axilla. By this means the weight of the shoulders was conveyed directly to the pelvis. From the centre of the sacral part there sprang a rod which curved forwards at its upper extremity, so as to support the head by means of a strap which passed below the chin. Whenever the instrument was put on, the patient felt some relief of the pain in the back, and some increase of power in the limbs.

He gradually improved, and by the middle of June not only walked about the ward, but made his way down to the green; and by November he was quite well, excepting that an anchylosed curvature existed in the back.

After thus recovering his health he went to sea, and remained steadily at work until about Christmas 1874, when his ship was overtaken by a storm and dismasted. He was then obliged, like the rest of the crew, to make great exertions to prevent the rise of water in the hold, and to work hard at the pumps for fifty-two hours with very little intermission. The ship was saved, but his spinal pains returned, and paraplegia speedily supervened. He was treated in hospital at Wexford for a fortnight; was then transferred to another infirmary, where his symptoms gradually increased, until, in the month of April, he was dismissed as incurable. He then returned to Edinburgh on 24th April 1875, was readmitted to my wards, and examined. It was then found that the girdle pain was very severe. There was a cold feeling in the legs, particularly the right, and some formication in the back of the trunk. Sensibility to touch, temperature, tickling, and pain was greatly impaired in the right leg, though it was natural in the left. The muscular sense was greatly impaired in the left leg, though natural in the right. He was unable either to walk or to stand, and even in bed, while the right leg could be moved about with some freedom, the left was totally paralyzed. It was clear that there was more disease than formerly, that mere pressure would no longer account for the phenomena, which must be due to local changes in the cord; but as these grave changes were due to the causes which were active during the former illness, the same treatment was adopted, and it was followed with like good results. In August the girdle pain had disappeared from one side, and the paralysis was much diminished. It was found that on the left side, the side affected with motor paralysis, the sensibility of the skin of the abdomen, up to the level of the umbilicus, was unnaturally acute. The patient continued to improve during the succeeding months, and in January left the Infirmary cured. He is at present employed as a sailor in the Baltic trade.

It is just a hundred years since Percivall Pott[1] described, with great accuracy, the form of disease of the vertebræ from which this

[1] Remarks on that kind of palsy of the lower limbs, which is frequently found to accompany a curvature of the spine, and is supposed to be caused by it. The Chirurgical Works of Percivall Pott, F.R.S., vol. iii. p. 393.

patient suffered, and the form of paraplegia which it is apt to induce. It is now[1] known that Pott's disease may originate either in a strumous affection of the bodies of the vertebræ or in disease of the articular structures, and that in whichever seat it may commence, there is ultimately crumbling down of the bone, resulting in the formation of an acute curvature, and perhaps abscess. I am inclined to think, considering the patient's age, his constitution, and occupation, the absence of suppuration, the presence of nocturnal exacerbations of pain, and the subsequent progress of the case, that the disease originated in the cartilages.

Pott[2] recognised the great features of this kind of paraplegia. He says,—"It should be observed that, notwithstanding the lower limbs be rendered almost or totally useless, yet there are some essential circumstances in which this affection differs from a common nervous palsy, when legs and thighs are rendered unfit for the purposes of locomotion, and do also lose much of their natural sensibility; but, notwithstanding this, they have neither the flabby feel which a truly paralytic limb has, nor have they that seeming looseness at the joints, nor that total incapacity of resistance which allows the latter to be twisted up in almost all directions. On the contrary, the joints have frequently a considerable degree of stiffness, particulary the ankles, by which stiffness the feet of the children are generally pointed downward, and they are prevented from setting them flat on the ground."

The clinical history has been more minutely described by subsequent observers.[3] The earliest symptoms are generally an abnormal attitude of the trunk, difficulty of bending and straightening the spine, and tendency to be easily fatigued; to which are subsequently added pain in the back, girdle pain, and paralysis. The paralysis is generally characterized by well-marked loss of motor power and slight diminution of sensory, with exaggeration of reflex excitability. According to the portion of the cord which is affected, special symptoms arise; for example, alterations of the action of the bladder, the irides, the circulatory, respiratory, or digestive systems.

The nervous symptoms resulting from disease of the vertebræ may be produced by affections of the nerves, the membranes, or the cord itself, each of which may be either simply compressed or structurally altered. While all three may be affected in common, each of them has its its own characteristics. Thus, when the nerves are the seat of disease, seeing that either the conjoint trunk or its two roots are invariably involved, sensation and motion are

[1] See Leyden, Rückenmarks' Krankheiten, vol. i. p. 217. Shaw, in Holmes's System of Surgery, 2d edit., vol. iv. p. 103.

[2] *Op. cit.*, p. 400.

[3] See Leyden, *loc. cit.* Bouchard, Dictionnaire Encylopédique des Sciences Médicales, vol. viii. p. 664. Shaw, in Holmes's System of Surgery. Charcot, Leçons sur les Maladies du Système Nerveux, cinquième leçon. Erb, Krankheiten des Rückenmarks, in Ziemssen's Handbuch, p. 318.

affected in the district supplied by the particular nerves, and, of course, the parts of the body supplied by nerves leaving the cord lower down are free. But, as in our patient the legs were paralyzed, and sensation was affected in one, motion in the other, it is clear that his symptoms were not referable to lesion of the nerves merely. When, again, the symptoms are due to affection of the membranes, anatomical changes are necessarily presupposed. These changes consist mainly of inflammatory thickening of the dura mater, so considerable as to compress the cord or the nerves as they pass out. Beginning at one spot, the process gradually extends, and sometimes even reaches round so as to encircle the cord.[1] The characteristic symptom of this condition is severe pain of a darting and radiating character, extending along the nerves, and aggravated by movement of the trunk. It is very probable that in our patient this lesion existed to some extent, but, considering the prominence of the motor paralysis, and the absence of any but girdle pain, it is apparent that a further cause must be sought for. Lastly, when the cord itself is at fault, either from pressure or from nutritional changes in its substance, there is interference with the function of the segment involved, and of the whole cord below it. It must not be forgotten that the lesion may be so localized as to involve only a single column or a lateral half of the organ; and that when this is the case corresponding varieties of symptoms are manifested.

Now, during the first period of his residence in the Infirmary, our patient had, as has been shown, merely pressure upon the cord. This was made evident by his comparative freedom from palsy when lying down, the rapid increase of the palsy when he assumed the upright position, and the relief experienced whenever the weight of the shoulders and head was taken off the spine; and the gradual advance of the symptoms indicated that neither the bursting of an abscess nor partial dislocation, rendered possible by destruction of bone, could be regarded as the cause; while all the facts corresponded with the phenomena which should result from the pressure of a sort of bag of disintegrated tissue, representing the bodies of the vertebræ. The result of treatment was arrest of the progress of disease of the bone, anchylosis of the affected vertebræ, and complete relief from pressure on the cord.

But during the second period of his residence in the Infirmary, it was no longer possible to ascribe the symptoms to simple pressure. It is admitted, indeed, that such a paralysis may arise from mere pressure; but, considering, on the one hand, that change of attitude made no difference, the patient being as completely paralyzed in the recumbent as in the erect position, and, on the other, the long duration and intensity of the paralysis, we are warranted in believing that chronic inflammatory changes had occurred in the sub-

[1] These processes have been minutely described by M. Michaud in his work, "Sur la Meningite et la Myelite dans le Mal Vertebral." Paris, 1871.

stance of the cord itself; whilst the distribution of the symptoms, paralysis of motion on one side, with loss of sensibility on the other, indicated an affection of one half of the cord, involving both the antero-lateral and posterior columns.

Assuming the correctness of this view, there are three points of considerable physiological interest to which I would direct attention, viz.:—

1. The confirmation which the case afforded of the discovery of Brown-Séquard,[1] that while the motor fibres decussate in the upper part of the spinal cord, the sensory fibres decussate near their point of entrance into the cord, so that section of one lateral half of the cord induces motor paralysis on that side, sensory on the other.

2. The confirmation of Brown-Séquard's statement, that while the fibres for touch, temperature, tickling, and pain, decussate near their point of entrance, those for the muscular sense do so at the upper part of the cord. The muscular sense, it will be remembered, was lost on the side which had the motor paralysis—not the sensory.

3. The confirmation of Brown-Séquard's observation, that section or injury of one lateral half of the cord at the level of the tenth dorsal vertebra leads to hyperæsthesia on the side on which motor paralysis exists. This exaltation of function was not recognised in the leg, but was distinctly made out in the lower part of the abdomen.

With regard to the treatment, it will be observed that although the pathological conditions during the two illnesses differed, the plan of treatment adopted was the same. The explanation is, that although during the second illness the cord itself had become affected, the primary lesion was the same at both periods. *Mechanical support* was the first essential. Various forms have been suggested, but the results I have obtained in a considerable number of cases by that which I have described have been very satisfactory. The patient who wears such a support is able to get up and move about, and has a much better chance of recovering strength than one who is kept constantly lying in bed. But rest in bed is also of great value, some authorities indeed regarding it as preferable to mechanical support. Its disadvantage is the want of exercise, the failure of appetite, depression of spirits, and lowering of general tone.

As to *internal treatment*, our patient derived most benefit from the use of iron. Unfortunately he could not continue cod-liver oil, but his general nutrition was carefully attended to by liberal dieting. Tonic remedies are as a rule of great importance, and, on the whole, iron, and quinine and iron, are the most suitable. During the process of recovery, benefit appears sometimes to be derived from the use of nitrate of silver. Strychnia, even in small doses, is apt unduly to increase the irritability of the cord; and

[1] Brown-Séquard, Journal de la Physiologie de l'Homme et des Animaux, Jan., Ap., and Oct. 1863. Radcliff, Lancet, 27th May 1865.

although its use is sometimes desirable in this form of paraplegia, it must always be employed with great caution. Cod-liver oil is eminently beneficial when the stomach will bear it. Leudet,[1] in his paper upon an interesting case of recovery from several successive attacks of paraplegia, insists upon the value of general internal treatment, and shows that by means of iron, antiscorbutics, tonics, and cod-liver oil, he has obtained excellent results, without local counter-irritation or other special treatment.

Electrization of paralyzed parts was in our case perseveringly employed. Faradization was as usual most useful, keeping up the activity of the nerves and muscles, their nutrition, and the circulation in the limbs. I did not employ a plan of treatment which is warmly advocated by Erb,[2] the local galvanization of the affected part of the cord. He places one electrode above, the other below, the diseased part, and passes a weak constant current, first in the one and then in the other direction for two to three minutes (in all) daily.

Counter-irritation over the seat of disease did not appear needful in this case. It was Pott's favourite treatment, and certainly the results obtained in many of his cases were very remarkable. He formed issues, kept them open with peas, and irritated the surface from time to time with powder of cantharides. It appears probable that counter-irritation is of use in different ways, viz., in relieving pain, in checking inflammatory action in the articular form of spine disease, and in diminishing inflammation of the membranes and substance of the cord. The experience of Charcot is much in favour of it. He employs the actual cautery. Of the benefits to be obtained by blisters and setons, we have an example in a case recorded by Dr James Young[3] about twenty years ago; while the application of compound tincture of iodine is recommended by Mr Shaw,[4] writing in Holmes's System of Surgery.

The results obtained by our treatment in the first illness have been already referred to. What were the results obtained during the second period? The spine became once more anchylosed; the membranes and the cord were restored almost to their natural condition, and the occurrence of important secondary changes (consecutive sclerosis) was prevented. That recovery of wounded or injured spinal cord may take place, was proved by the observation of Van Kempen, Flourens,[5] Brown-Séquard,[6] Masius and Vanlair.[7] The

[1] Recherches Cliniques sur la Curabilité des Accidents Paralytiques consecutifs au Mal Vertebral de Pott. Mémoires de la Société de Biologie. 1863. P. 100.

[2] Die Krankheiten des Rückenmarks, Ziemssen, Handbuch Speciellen Pathologie und Therapie, B. xi. part 2, p. 342.

[3] Edinburgh Medical Journal, 1856, p. 1021.

[4] Holmes's System of Surgery, 2d edition, vol. iv. p. 158.

[5] Annales des Sciences Naturelles, t. 13, p. 128.

[6] Med. Exam., 1852, p. 379.

[7] Recherches Experimentelles sur la Régénération Anatomique et Functionelle de la Moelle Epinière. Quoted by Leyden.

last-named authorities proved not only that simple section of the cord of the frog, or other animal, may be recovered from, but that a considerable loss of substance may be made up for, and voluntary motion completely restored. The details of the pathological process, as described by these writers, are full of interest. Leyden[1] states that experiments have been made by Paul Dentan, which show that this power of recovery exists in dogs as well as in cold-blooded animals. Such observations render it probable that, even in man, there may be restoration of structure as well as function where lesions have been produced by injury or disease; and, unless I am mistaken, this actually occurred in our patient. Recovery from the local affection being obtained before much time had elapsed, he was saved from the development of secondary sclerosis.

(*To be continued.*)

Article IX.—*On the Registration Pseudonyms of Puerperal Fevers.* By R. Park, L.F.P.S.G., etc., Stewarton.

It may appear somewhat presumptuous upon my part to attempt to criticise Dr Matthews Duncan's paper in the March number of this Journal. An unfortunate recent experience of puerperal fever in my own practice, and an intense interest in the subject, must be my apology, if any be needed.

There is one possible fallacy underlying his statistics, which is sufficiently indicated in the title of this paper, and to which I do not think Dr Duncan has attached sufficient importance. It would, at least, be extremely satisfactory to the general practitioner to know whether Dr Duncan's statistics are based upon cases registered as "puerperal fever" *only;* or if cases of "puerperal pyæmia," "puerperal peritonitis," "puerperal metroperitonitis," have likewise been extracted. Or, have his statistics for their basis all cases of puerperal mortality occurring within a certain date of the accouchement?

I trust it is not the case with many practitioners to certify their puerperal deaths under a pseudonym. That the thing does occasionally happen, however, either through ignorance or slyness on the part of practitioners, I intend this paper to prove, and it may possibly call forth facts of a similar nature to those following.

After the perusal of Dr Duncan's paper, I took the trouble of examining the registers of births and deaths here, which I was allowed to do by courtesy of the registrar. I examined them for four years back, with this result, viz., during the year 1872 there were 155 births and no puerperal deaths; during 1873 there

[1] Leyden, *op. cit.*, vol. i. p. 84.

were 153 births and 1 puerperal death, registered "Metroperitonitis, 3 days, æt. 31;"—during 1874 there were 167 births and 4 puerperal deaths. Of these cases, one, æt. 28, was entered "puerperal peritonitis, 6 days;" No. 2 was entered "irritative fever, 5 days;" No. 3, "exhaustion after childbirth, 4 days;" No. 4, "puerperal eclampsia, 4 days." Although I did not see case No. 2, I have the strongest possible reason for believing it was a true case of puerperal fever, death occurring on fifth day after childbirth. Any kind of fever occurring, and especially terminating so soon after in death, could not be aught else than puerperal fever. No. 3, I think it probable, is a correct entry, though I do not certainly know. Nos. 1 and 4 are correctly certified. In 1875 the births numbered 159, and there were 4 puerperal deaths. Of these, one, æt. 26, died 7th June, about the twentieth day after confinement, and the cause of death is entered as "gastric irritation, 10 days; diarrhœa, 4 days." It was a well-marked case of puerperal fever, as Dr Marshall of Kilmarnock, who kindly saw the case with me and confirmed my diagnosis, can testify. The second case was entered "post-partum hæmorrhage," and of it I have no personal knowledge. Nos. 3 and 4 were entered "puerperal peritonitis."

Now, here we have 2 out of 9 puerperal deaths incorrectly certified; and a statist simply extracting those entered correctly would be grievously misled: for as the birth and death registers are kept separate, it is impossible to know, except by the nosological term, whether a death, say from "irritative fever, 5 days," was puerperal or not. It is a well-known fact that many medical men are very lax in the filling-up of death-certificates, but it may not be so widely known that other influences besides simple laxity may lead to incorrect registration—particularly of puerperal fever. These influences may not, however, prevail to such an extent in London and other large towns as they do in country districts. It is well, nevertheless, that attention should be directed to the subject: and particularly so, as Dr Duncan's argument is weakened by the possibility, if not probability, that a great number of the puerperal deaths in London are registered under pseudonyms.

More evidence is urgently required upon the subjects of epidemicity and contagiousness of puerperal fevers. I am certain of this, from personal experience, that if it cannot be said of a certain number of cases of post-partum illness occurring within a limited space of time and mostly ending fatally, that they were "epidemic," it must be admitted that occasionally autogenetic post-partum fevers occur so nearly to one another as very closely to simulate an epidemic.

Part Second.

REVIEWS.

A Treatise on the Science and Practice of Midwifery. By W. S. Playfair, M.D., etc. In Two Volumes. London: Smith, Elder, and Co.: 1876.

We congratulate the profession and Dr Playfair on the appearance of this most valuable work, and we do so with the distinct consciousness of the recent publication of the second edition, in one large octavo volume, of a book of the same scope, its only worthy rival by a British author.

The highest performances in midwifery are original papers or work—Paré, Chamberlen, Smellie, W. Hunter, Ould, Solayres, Kergaradec, Douglas, Michælis. Next to this comes critical work, which includes such systems as those of Deventer, Roederer, Denman, Ramsbotham, and the volumes of Dr Playfair now before us.

Although second in order, for many reasons, the production of a good systematic treatise is a noble and invaluable achievement, more difficult, we believe, than the doing of original work. Original work requires at least a degree of genius, and progresses with enthusiasm. Few produce great papers of this kind, and of these few there are still fewer who could produce a system. That must be a weariness to the flesh; for the author must, whether with joy or without, go over a vast extent of literature on the most varied topics, must have scientific and practical training to give point and utility to his studies, must digest the whole discordant materials, and judiciously write down all that is important fact, important opinion, important direction. Many men who are not original are able for this work; few do it. To successful performers of such work the profession owe and acknowledge deepest gratitude. Such original men as Harvey, J. Hunter, C. Bell, stand on pinnacles of glory and utility; but for good, commonplace, extensive, homely, daily service to the profession and to mankind, the writer of a good system or text-book holds a most enviable eminence. Playfair has added to some original work the production of a good system as his title to the gratitude and respect of the profession.

It is very interesting, to any one moderately well acquainted with what is going on in midwifery science, to watch what may be called the development of doctrine, including the slow and imperfect elimination of error. This is a chapter in the history of philosophy, for illustration of which the midwifery text-books of the last thirty years furnish excellent materials. There are old

doctrines either erroneous or insufficiently established; new doctrines either confirming or opposing the old; doctrines entirely new; errors new and old; new observations; new experiments, but, alas! too few. Among all these there are many inevitable collisions, much confusion, much mere talk, great persistent vitality of error, with the ultimate triumph of truth already more or less secured, or only in distant prospect. As an example of this, what could be better than the theory and practice of delivery in the various forms of contracted pelvis? Here, there is only as yet a distant prospect of solution of great questions; and, even in Playfair (though quite as much everywhere else), there is not that condensed and accurate fulness which our present lights permit. In this article it would be foolish to enter into particulars; but we may indicate the tenor of our omitted criticism by saying that, instead of Simpson and Spiegelberg, we should have had Michælis and Litzmann. The best writing on this subject is not, we think, referred to by Playfair, namely, the four articles of the Kiel Professor in the Volkmann's Sammlung. He has not had time to consider the value of Budin's recent experiments, which are nearly crucial in kind. On another subject, which is rapidly developing, and in which the errors are dying hard, namely, placenta prævia, we have a good exposition from Playfair; and there is even further progress attained in Spiegelberg's recent article on the subject in Volkmann's Sammlung, an article which is very much too bare of historical indications of the steps of modern progress. He excels in the casting behind him old errors and recommendations. Especially he entirely discards the separation of the placenta in any way. We might give many other illustrations of the growth and development of doctrine, but shall merely refer to our author's excellent chapters on Pregnancy, especially to that on the Fœtus *in utero*. We may also note, in this view, the admirable account of Puerperal Pyæmia.

One of the most hopeful sources of increase of our obstetrical knowledge is homalographic anatomy, a department which has not been cultivated at all in this country. The chief midwifery work in this method is that of Braune of Leipsic, and Dr Playfair attests his high estimate of this sectional science by making for each of his volumes a frontispiece, which is one of Braune's plates reduced. These are well worthy of the position given them, for the method is yet in its infancy, and there is no saying what great addition or supplement we may soon, through it, have to W. Hunter's plates published a century ago. These plates of Braune's show well what difficulties are to be encountered in this method, when the regional anatomy involves parts which may collapse or in any way change their position. It would be wrong to suppose that the relations seen in the frontispiece are exactly natural, which they are perhaps supposed to be. It would be easy to show, especially in the frontispiece to the first volume, how much post-mortem change has

taken place: at present let it suffice for the student to draw a line from coccyx to lower border of symphysis, and observe how much the uterus and pelvic contents have been pushed backwards and downwards and outwards, to the very great obliteration of the conditions of life which it was the object of the plate to exhibit.

It is always true in medicine that advanced science leads to improved art, and this is verified in no part of medicine so much as in midwifery; because, though still comparatively ignoble, and otherwise suffering from long neglect, midwifery is more scientific than medicine proper or surgery. Look at our precision and success in those parts of obstetrics which we know well, and then look at our wretched differing, dabbling, and failure, and bungling in such gynæcological matters as endometritis and displacement. Had Playfair not been good in science—in the anatomy, physiology, and pathology of midwifery—we should not have taken the trouble to look at his practice; for it was already settled that that was all in a mess — confusion, vacillation, weak credulity, mere insufficient empiricism. Fortunately, Playfair has a good groundwork of the essential science, and accordingly we find his practical recommendations to be on the whole sound and simple.

The work is an excellent one, destined to improvement (we hope not enlargement) in succeeding editions. We need scarcely say, that we recommend it to practitioners, teachers, and students. It is second to no similar treatise in our language, superior to most.

An Introduction to Human Anatomy. By WILLIAM TURNER, M.B., Professor of Anatomy in the University of Edinburgh. Edinburgh: Adam and Charles Black: 1875.

EVERY student of Anatomy will be glad that Professor Turner has published, in a separate form, his already well-known article "Anatomy" in the forthcoming edition of the Encyclopædia Britannica. For although in that great work it will be read by a large circle of readers, there are many to whom it would not have been easily accessible, unless it had been, as it now is, issued in a shape which puts it within the reach of all. The book bears the title "Introduction to Anatomy," but it is an introduction, not as giving merely the elementary knowledge which introduces the student to the science, but as enunciating and discussing the more difficult and yet fundamental principles upon which all thorough anatomical knowledge is built. It is essentially a book of principles and not of details. There was need for such a work, for if we look to Gray and Quain—our two standard text-books on the subject—we find the former a mere collection of descriptions heaped the one

upon the other, and the latter a compendium which indeed combines both, but treats the principles in a heavy and very unattractive manner. Professor Turner has avoided the mistakes of both these writers, and if he has fallen into any, it is in having confined himself too strictly to the principles upon which anatomy proceeds, giving the narrowest possible space to description and detail. But he has unfolded these principles with singular ability. The wonderful clearness which distinguishes his teaching characterizes his book; in his luminous style everything becomes plain, and many intricate points in development and homology are presented in such a form as to compel the interest not only of the professional but of the general reader.

As yet the first volume only of the book has appeared. Of it the opening chapter is occupied by an account of the osseous system; and this, which is generally felt to be the most tedious subject in an anatomical treatise, is rendered more than usually interesting by a thread of comparative anatomy which runs through and simplifies the whole. His descriptions of the individual bones are very brief, and are based upon their development—the only true scientific basis. Thus the temporal bone he describes as consisting "originally of four subdivisions—a squamoso-zygmatic, a tympanic, a petro-mastoid, and a styloid—which in course of time fuse together to form an irregular-shaped bone." To the different parts of the sphenoid bone he applies the terms basi-sphenoid, pre-sphenoid, orbito-sphenoids, ali-sphenoids, and pterygoid processes; and in this way he assimilates the terms employed in comparative anatomy to human anatomy. At the close of this chapter the author gives a concise and clear account of the development and homologies of the skeleton, and in this he discusses the vertebral structure of the skull—a theory advanced by Oken, and Goethe the German poet. He points out that so long as we leave development out of the question, and define, with Owen, a vertebra to be "one of those segments of the endo-skeleton which constitute the axis of the body, and the protective canals for the nervous and vascular trunks," the theory may be supported by very forcible arguments. The developmental changes which the vertebral column and skull pass through, however, show marked differences between them. He gives these in a tabular form, and this we may quote:—

SPINE.

1st Stage.	*2d Stage.*	*3d Stage.*	*4th Stage.*
Unsegmented chorda.	Proto-vertebræ.	Segmented cartilage.	Segmented bones.

BASIS CRANII.

1st Stage.	*2d Stage.*	*3d Stage.*	*4th Stage.*
Unsegmented chorda, in part.	Unsegmented cartilage.	Segmented bones.	Unsegmented bones.

He ends the discussion with the forcible quotation from Huxley, "The skull is no more a modified vertebral column than the

vertebral column is a modified skull." With regard to the homologies which exist between the shoulder-girdle and the innominate bone, the author considers the scapula to be the homotype of the ilium, the coracoid process the homotype of the ischium, and the pubic bone of the procoracoid of the amphibia, etc. The clavicle is represented by Poupart's ligament. He agrees with Goodsir in regarding the shoulder-girdle as distinct from the axial skeleton. In this he is supported by Parker, who has recently shown that the supra-scapula of fishes, which connects the scapula with the occipital bone, is not homologous with the supra-scapula of reptiles or mammals, but is a bone developed as part of the dermo-skeleton.

The next chapter treats of the joints and muscles. This is followed by perhaps the most successful part of the work—the anatomy of the textures or tissues. Taking into account the transition stage in which microscopic anatomy is at present, and the scattered state of its literature, there was need for some brief digest of the subject, including the recent advances which have been made in this field. This is in fact what we have here. Avoiding debateable ground, the author has placed before the reader only well-ascertained facts. He divides the tissues, for descriptive purposes, into three groups—(1) Cells suspended in fluid; (2) Cells placed on free surfaces; (3) Cells embedded in solid tissues.

In his account of epithelium, he takes notice of the recent observations of H. Watney, which show that between the cells there is a delicate reticulum of connective tissue; and rightly ignoring the recent article by Michael Foster upon the "absurdity" of the term *endothelium*, he still retains it. We are interested to see that he is a believer in the observations made by Ranvier, Spina, and Thin, which show that a continuous layer of flat cells covers not only tendon, but the various bundles of which it is composed. He considers that "these flat endothelial-like cells are obviously a special differentiation of the formative cells of the connective tissue at the surface of the bundles." But cells very similar to these are found in various other localities. Thus, they invest the bundles of the perimysium of muscles, and the bundles of fibrillæ which enter into the formation of the corneal lamellæ; in nerve tissue, we also find them around the bundles of perineurial connective tissue, and forming a layer between the primitive membrane and medullary sheath of a nerve fibre.

The last two chapters are devoted to an account of the nervous system and the organs of sense. With regard to the first, little need be said, except that it is quite in keeping with what goes before. His mode of mapping out the cerebrum into lobes and convolutions, which may be regarded as a modification of the arrangement proposed by Gratiolet, is already well known. An interesting addition to this, however, is the relation which these lobes hold to the bones of the

cranial vault. He points out that the lobes are not co-terminous with the bones from which they derive their names; the area of the parietal bone is considerably larger than the area of the outer surface of the parietal lobe, and consequently this bone overlies a small portion of the front part of the occipital lobe, a larger part of the posterior portion of the frontal lobe, whilst inferiorly it overlies the upper part of the temporo-sphenoidal lobe. The internal structure of the cerebrum is given in a very compact and yet exhaustive form.

The Journal of Anatomy and Physiology. Conducted by G. M. Humphry, M.D., F.R.S., Professor of Anatomy, Cambridge; William Turner, M.B., Professor of Anatomy, Edinburgh; Michael Foster, M.D., F.R.S., Trinity College, Cambridge; William Rutherford, M.D., Professor of Institutes of Medicine, Edinburgh. Vol. X. Parts II. and III. Macmillan and Co.

Now that it is published quarterly, and the labour of editing subdivided among four, the Journal of Anatomy and Physiology more than sustains its previous high character. The report on the Progress of Anatomy, by Professor Turner and Dr Cunningham, and that on Physiology by Dr Stirling, are most valuable indices for all who wish to know what is being done, and who is doing it, in those sciences. We have to notice two numbers; that for January containing ten, and that for April twenty-two original articles, apart from reports and notices of books. Most of the articles, such as those of Dr M'Intosh on the Lineidæ, Mr Balfour on the Development of Elasmobranch Fishes, or of Prof. Huxley on the Craniofacial Apparatus of Petromyzon, are too purely technical for review in these pages. Of more general interest in the January number is a contribution to the Anatomy of the Lens, by Dr Thin and Dr Ewart, detailing principally the microscopic appearances both in the lens and other tissues obtained by injecting solution of chloride of gold into the arteries. Experiments on the biliary secretion of fasting curarized dogs, by Professor Rutherford and M. Vignal, must be welcomed by all except those who are conscious that nothing could add to their knowledge of the liver and its secretion. Among other points they find indications that "powerful purgative action tends to diminish the biliary secretion." An elaborate paper by Dr Stirling, on the Summation of Electrical Stimuli applied to the Skin, is also of interest. In the April number a short paper, by Dr Ransome, on the relative powers of fresh and previously-used Pepsine, deserves attention, if for nothing more than the analogies it suggests regarding zymotic poisons. Dr Blake of San Francisco writes upon the Salts of Beryllium, Aluminium, Ythium, and Cerium. Preparations of the latter were once well known in Edinburgh practice. Dr Blake

says that it is very poisonous, and states of "oxide of alumina" that one part in 20,000 of blood produces strong contraction both of pulmonary and systemic capillaries. He moreover discovers a close connexion between the intensity of physiological action and the atomic weight of metals in the same isomorphous group. Dr Lauder Brunton finds condurango to be physiologically inert; and Dr M. Foster, in "Some effects of Upas Antiar on the Frog's Heart," states that it causes a tetanus, brought about by an extraordinary prolongation of the relaxation phase of each contraction, and not by a too rapid sequence of beats. The vagus still retains its inhibitory function, though the more profound the action of the drug, the less easily is inhibition obtained. Antiar is essentially a muscular poison; and a curious fact pointed out by Dr Foster is, that while frogs are very easily killed by it, toads enjoy a perfect immunity.

Lectures on the Comparative Anatomy of the Placenta. First Series. By WILLIAM TURNER, M.B. (Lond.), Professor of Anatomy, University of Edinburgh. Edinburgh: Adam and Charles Black: 1876.

THESE lectures were delivered in the theatre of the Royal College of Surgeons of England in June 1875, and were then abstracted by some of the weekly journals. The volume now published contains, in addition, observations made subsequent to the delivery of the lectures; and is illustrated by three double-page plates with 15 figures, most of which are printed in colours. As might be expected, it is a model of clear description; and we strongly recommend its perusal to all who feel the insufficiency of their knowledge of the minute anatomy and physiology of the placenta. Not only is there a great amount of most valuable original matter, but old facts are fitted into their proper places and the whole made intelligible. Professor Turner wisely begins at the beginning by dealing with the fœtal membranes and the unimpregnated uterine mucous membrane. He then considers the changes taking place in the chorion on the one hand, and in the uterine mucosa on the other, and so passing from the simple to the more complex arrangements, he takes up in succession the diffused, the polycotyledonary, and the zonary forms of placenta. A chapter upon the general morphology of these forms of placenta contains some unwelcome facts for those zoologists who ground their classification mainly upon placental characters. It is shown that the character of deciduation is indefinite, as it admits of many degrees, depending principally, if not entirely, upon the extent to which the fœtal placenta interlocks with the maternal, and that it is therefore governed by purely mechanical causes. A sharp line of demarcation cannot be drawn between caducous or deciduate and non-

caducous or non-deciduate mammals, for "the same anatomical elements exist in both types of placenta, and the shedding or non-shedding of maternal tissue is determined by the degree of interlacement of the fœtal and maternal parts of the organ, and not from the presence in the deciduata of structures which do not exist in the non-deciduata." The "Physiological Remarks" which conclude this small volume are well worthy of the attention of all who have any interest in parturient mammals, whether from a practical or scientific point of view. The second series of lectures, containing an account of the remaining types of placenta, will be delivered this summer.

Étude Comparative des Diverses Méthodes de l'Exérèse. Par Dr Ch. Monod. Paris: J.-B. Baillière et Fils: 1875.

The word *exérèse*, which stands as the title of this thesis, is derived from the Greek ἐξ, *out of*, and αἱρεῖν, *to lift*, and its meaning is here limited to the different means at present in use for the surgical removal of useless or diseased parts of the economy, growths, etc.

The subject is divided into two parts: 1. The method in which cutting instruments are used, and which is accompanied by hæmorrhage. 2. The Bloodless Method. This being subdivided into A, *methods by constriction*, including the elastic and other kinds of ligature, and the ecraseur; and B, *methods by cauterization*, including the application of the actual and potential cautery and the galvano-cautery. And, lastly, the method by tearing out and enucleation.

These methods receive full consideration, both as to the instruments and appliances to be used, the cases in which the various methods are applicable, and the dangers and kinds of wounds resulting from the different modes of operating.

The Liverpool and Manchester Medical and Surgical Reports. Edited by S. Massenger Bradley, F.R.C.S.; P. M. Braidwood, M.D.; John Wallace, M.D.; and Walter Whitehead, F.R.C.S.E. London: Simpkin, Marshall, and Co.: 1876.

Provincial periodicals, whether special or general, labour under many disadvantages as compared with their metropolitan contemporaries, not the least of which is, that those who start and support them rarely put forth all their strength in contributing to them. Literary men and artists in the provinces send their best work where it will find the best market; and similarly provincial practitioners elect to record their more important cases and experiences in journals having a wide circulation. It would be thus no

less unreasonable than unfair to measure such a publication as the *Liverpool and Manchester Reports* by the standard of excellence we should apply to, let us say, the *British and Foreign Medico-Chirurgical Review*. Still, making every allowance for possible causes of weakness, we refuse to believe that the many busy members of the profession practising in, and in the neighbourhood of, two of the most populous towns in the kingdom, could not, with little effort, produce a good readable year-book.

The volume before us is the fourth issue of this annual in its present form, and it can scarcely be considered an improvement on those which went before it. Indeed, the very fault most conspicuous in previous volumes is most conspicuous in the current volume; it is not a uniform whole, but a mere collection of articles, notes, and abstracts, thrown together. The editorship, it will be seen, is placed in commission, but the responsible editor, so far as regards the present volume, is, as stated in the title-page, Dr Wallace. We cannot help thinking, if this gentleman had civilly "declined" some of the papers he has admitted, and judiciously cut down others, he would have economized the time and earned the gratitude of many a weary reader. We know it is not always practicable to do this without offending individuals; but an editor should be a veritable "man in buckram," stern and relentless in the performance of his duty.

Some of the papers are disquisitions *pur et simple* on more or less hackneyed subjects, lightened by the introduction of cases not always apposite; some are clinical memoranda printed without arrangement or condensation. The first contribution we notice, "Dr Miller on Placenta Prævia," may be taken as a fair example of the prior class. The essay is not a long one, but history, theory, symptoms, diagnosis, and treatment are all discussed, and there are no less than eleven footnotes referring to authorities. The clinical element is supplied by records of two not very interesting cases. In one, the author plugged the vagina, and afterwards delivered by turning, the patient dying three hours subsequently of post-partum hæmorrhage; in the other, the heroine of which made an excellent recovery, the vagina was also plugged, and then after "true labour pains had set in, and the os was well dilated and dilatable," the placenta was detached round the cervical zone, the membranes ruptured, and the labour "went on in a most satisfactory manner, and ended in the expulsion of a living child." The paragraph on symptoms contains what at first appears to be a good joke, but is doubtless a printer's error. The reader is told that the first and most important of the symptoms of placenta prævia is hæmorrhage, "which, though it may occur under other conditions, is sufficient to warm (*sic*) the practitioner," etc. As regards diagnosis, the author refers to "a new method by means of stethoscopy, lately introduced by Dr Wallace of Liverpool," consisting "in passing a peculiarly-formed stethoscope per

vaginam." We have not seen Dr Wallace's stethoscope, but presume it does not differ essentially from the stethoscope for auscultating the cervical portion of the uterus we saw employed by Dr Keiller of Edinburgh, just ten years ago. Dr Keiller had then had the instrument in use many years. Having given a local practitioner credit for the introduction of one of Dr Keiller's inventions, it is not surprising to find the author falling into the common error of calling Keiller's bags Barnes's. On the subject of the artificial extraction of the placenta before the child, the author appears to be under the impression that Simpson was the first to suggest the plan of treatment. He says:—"Noticing what had already been reported by previous authors, that in many cases the placenta is spontaneously detached and expelled with perfect safety to both mother and child, he conceived the idea that this might be done artificially with equal success." Compare this with the following from Tyler Smith's manual:—"From an early period it had been remarked by accoucheurs, that cases of unavoidable hæmorrhage were occasionally met with, in which the placenta was expelled spontaneously before the birth of the child, and that others occurred in which the hæmorrhage was arrested by the spontaneous separation of the placenta. The first person who seemed to have pointed out the deduction of a rule of practice from such cases, was Mr Chapman, of Ampthill." All Simpson really did in this respect was to advocate the claims of an old operation, state its advantages, and the cases to which it was applicable.

An instance of an even less satisfactory paper belonging to this class is Mr Wood's, "On Ovariotomy and Exploratory Incision in Certain Cases of Ovarian Disease." By the author's own account, his "wish is to show that within reasonable limits many so-called unfavourable or doubtful cases may be subjected to an exploratory incision, with a view to determine whether a tumour or cyst can be removed with a fair chance of a successful result;" but he fails to show anything of the kind. He gives notes *in précis* of six desperate cases operated on by Teale, Keith, Spencer Wells, and others, which, as it appears to us, have little bearing upon the subject. The only original cases the author cites are quite as little to the purpose;—one, in which he tapped, and the patient died five days afterwards, the author gives the particulars of, in order to have an opportunity of expressing regret that an exploratory incision was not made; the other, in which an exploratory incision was made, and the patient died in six hours, he introduces because "it might appear a want of candour not to relate it."

Among the papers which may be fitly described as "all notes," is one "On the Value of Electricity as a Therapeutic Agent for the Relief of Pain." It has a strong family likeness to certain brochures not unfrequently posted to members of the medical profession by advertising magnetizers. A more extraordinary example of

this kind of contribution is Mr Paul's "Cases of Hyperpyrexia in which the Bath Treatment was adopted." It contains no less than twenty-four pages of records, in columns headed—Date, Temperature, Bath, Pulse, etc. Some of the more unpretending contributions, as Dr Braidwood's "Scraps from a G. P.'s Case-book," and Dr Haddon's "Gleanings from Private Practice," are really interesting. Dr Cullingworth's "Hæmorrhage from the Genital Organs in the Recently-born Female Child," is also worth reading, though the phenomenon treated of is of little clinical significance. Then there are Dr Vacher's remarks "On Serum Sanguinis as a Therapeutic," and Dr Wallace's "Mechanism of the Outlet in Natural Labour," both of which merit a careful perusal. The latter throws doubt on the most approved views as to the peculiar complex movements which go to form mechanism, and aims at teaching something new on this much-studied subject. The gist of Dr Wallace's opinions may be gathered from the two following extracts:—"From the commencement of a natural labour to its termination, the head completes, firstly, a rotation movement of half a circle; and, secondly, reversely, a full circle of spiral movement." "Repeated examinations show there is no extension whatever, but, on the contrary, that the chin never leaves contact with the chest until it escapes from the perinæum, while the chest and trunk are moulded into the hollow of the sacrum with a greater or less extent of curvature, corresponding to the curvature of the maternal passages, and driven downwards close to the chin." As regards the full circle of spiral movement in the act of expulsion, we never remember to have seen it, and would suggest that if it takes place, as it may rarely, it is by mere accident. In the matter of extension, we so far agree with Dr Wallace that we think this movement during the passage of the head over the perinæum is less pronounced than it is generally held to be; but that it does take place to some extent, the bedside experience of most practitioners will not permit them to doubt.

In conclusion, we note with pleasure tabular statements of the major operations performed at the Royal Infirmaries, Liverpool and Manchester, and five other local hospitals.

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION LV.—MEETING VIII.

Wednesday, 7th June.—Dr GILLESPIE, *President, in the Chair.*

I. *Mr Bell* showed THREE PATIENTS. 1. This case was an example of an injury interesting from its rarity in civil practice. It was that of a boy whose hand had been injured by a small cannon exploding. It had been loaded with sixteen pellets, which scattered in the palm of the hand. The ramrod also had penetrated the hand between the fourth and fifth metacarpals. The result of treatment was, that now, on the twenty-fifth day, there was perfect movement. The other two cases were examples of fracture of skull, different in their nature and treatment. The first was that of a boy who fell from a height on his vertex, and sustained a fracture extending from the ethmoid to the torcular Herophili. Although the bones were loose, and the left half of the skull was somewhat below the right, there were yet no symptoms of compression. The case was treated antiseptically, and with careful drainage. There was never a bad symptom, and now the patient was quite well. The second case was that of a man in a pit, on whose vertex an iron box, weighing 150 pounds, fell from a height of 30 feet. This caused a depressed fracture of one-half of the calvarium past the other. The frontal and parietal bones were both split, and the left half of skull was overlapped by the right. The patient, when brought in, was comatose from compression. Mr Bell therefore trepanned a portion of the ov r-lapping bone, and, by means of a strong lever, raised the depressed half up with a crack. The man, however, remained comatose, so that he thought the best thing for him would be extensive bloodletting. Twenty-five ounces of blood were accordingly withdrawn from one of the sinuses, until the pulse was brought down considerably. For nearly fourteen days after this he was somewhat confused, but his pulse and temperature never rose. Several splinters of bone were removed, one of them being completely twisted, so that the lower surface was upper. In trepanning, he saved the periosteum, and there was thus now little depression. The patient had made a good recovery without any cerebral symptoms whatever. He only wished further to state, that the case illustrated a curious metaphysical problem, viz., that the patient's loss of recollection dated, not from the accident, but

from about twenty-four hours previous to it. He had noticed this fact in several cases, and he hoped some day to have a short paper on this interesting and little-known subject.

II. *Dr Wyllie* showed the following microscopical specimens: one of CROUPOUS PNEUMONIA IN THE STAGE OF RED HEPATIZATION; the other of CIRRHOSIS OF THE LIVER. Both were typical cases. The first displayed a large number of extravasated red corpuscles in the croupous exudation. The second showed an abundant formation of leucocytes in the newly-formed zone of connective tissue, at the margin adjoining the periphery of the lobule, where the growth of the tissue was apparently most active.

III. *Prof. Simpson* showed TWO CALCULI he had removed from the bladder of a woman who had been sent in to him with prolapsus uteri. Vaginal examination was not easy, on account of the pain. By means of a sound passed into the bladder the calculi were detected. The urethra was dilated, and one calculus, weighing 2 oz., extracted by means of abortion forceps. After still further dilating and incising the urethra, the other stone, 4¼ oz. in weight, was also removed. After this the patient had no more suffering. There was, however, incontinence of urine. The calculi had been removed in December, and fifteen days ago he had pared the cauterized edges of the urethra, and brought the raw surfaces together with nine metallic sutures. The bladder was relieved by means of the catheter for two days. On the third day the patient was allowed to empty the bladder by the natural effort. The stitches were removed on the ninth day, and the patient had been sent home able to retain her urine and to pass it voluntarily.

IV. *Dr T. Grainger Stewart* then read a paper on CASES OF PARAPLEGIA, the first part of which appears at p. 56 of this Number.

The *President* felt justified in giving Dr Stewart the thanks of the Society for his careful cases. Although they were different in character, they yet had much in common. The surgical treatment of the first case showed how qualified Dr Stewart would be for the next vacant surgeoncy in their hospital; but the pathological deductions proved that he was even better fitted for its physicianship. The second case was more of a medical one, and was admirably detailed, especially the reasoning as to its causation. He agreed with Dr Stewart as to its most probably being of malarial origin. Many years ago he had under treatment an actor struck down by paraplegia from Pott's curvature. He employed an apparatus similar to what had been described by Dr Grainger Stewart, and the patient left the hospital almost well.

Dr Argyll Robertson thought that a paper of such merit should meet with the approval of all the members of the Society who had listened to it. Both cases had been detailed with minuteness and accuracy. They were specially indebted for the description of the

mechanical support used, and which had been exhibited previously. Both cases were valuable, but the first especially interesting, as corroborating the results of Brown-Séquard's experiments on the functions of the spinal cord, and the direction in which the sensory and motor fibres passed through it. The fact of their being able to explain such obscure phenomena, shows the value to be attached to those experiments, undertaken only by vivisectionists, against whom there was at present so much outcry. These cases were also valuable as showing the data on which correct methods of treatment may be founded. The difficulty nowadays was not to diagnose, but to treat such cases: when to employ strychnia or ergotin; and when to use or not to use faradization, etc. It was only by gathering up, in well-observed and well-narrated cases, the symptoms and results of treatment that they could get at any correct generalization as to these points. For bringing out such points, Dr Stewart deserved the thanks of the Society; and he hoped that at a future period they would get the rest of the cases.

Dr Wyllie said that Dr Stewart had not informed them whether there were any rheumatic symptoms in his second case; but he had no doubt he had his eyes open to that being a probable cause. Paraplegia was known to be often preceded by pains of a chronic rheumatic character, and to be sometimes apparently the result of chronic rheumatism, but it was not so well known that it might be caused by acute rheumatism. When house-physician in Birmingham, he observed two cases in which paraplegia was thus produced. In the first case, that of a young man, there was paraplegia without rheumatic pain on the day of admission; but next day the paralysis was gone, and the rheumatic fever fully developed. The second case was that of a female, in whom also rheumatic pain was preceded by a sudden paraplegic seizure. When she had recovered from the attack of rheumatic fever, this patient continued to come to the Hospital for months as an out-patient, suffering from partial paraplegia and chronic rheumatism. The rheumatic poison might therefore so affect the spinal cord as to paralyze its functions.

Mr D. J. Hamilton remarked, that in regard to the degeneration of the spinal cord in cases of Pott's curvature, especially where there is pressure, observations show that there is a class of lesions, consisting in destruction of certain tracts, which render recovery hopeless. These were secondary changes, not due to sclerosis, but to trophic lesions of nerve-centres, such as the corpora striata, or cord itself, taking place in different directions. Waller and others had found that six or eight weeks after the division of the glossopharyngeal in frogs, there was degeneration; while in warm-blooded animals the period was longer. From his own observations on fractured spines, where there were complete compression and paraplegia, there was destruction in five to six months.

This consisted in fatty degeneration of the nerve-tubes. The hopes of recovery depended on the state of the axis cylinder; if it was degenerated, then there was no hope of any amendment. As shown by Türck and Bouchard, lesion of the corpus striatum produces degeneration in a direction downwards; lesion of the cord itself, degeneration upwards and downwards. As to reparation of nerve-structure there was great difference of opinion. In cold-blooded animals, reparation may take place after section or removal of a small part of the spinal cord. In regard to Dr Stewart's last case, he would like to ask him if he had made out whether the lesion was functional or due to the extension of diphtheritic poison to the cord itself. In the case of a child, the brain was found, by Letzerich, infiltrated with micrococcus. In one case of diphtheritic inflammation of bladder, he had found extensive disorganization of the cord from absorption of the poison.

Dr Clouston agreed with what had been said as to the value of Dr Stewart's communication. In regard to the first case, he had, in two instances, after death discovered the cord flattened at one point, from old disease of the vertebræ, being in one case only $\frac{1}{4}$ of an inch thick, and almost twice its usual breadth. Yet there were no pathological changes, and the only symptom during life was slight stiffness. As to Dr Stewart's second case, he had exhausted all that could be said on it. He would only remark on its similarity to those cases of hysterical paraplegia from which patients even died. In one case which he had seen lately, that of a lady who had at first most severe hysteria, with no special motor or sensory paralysis, but only great hysterical extravagance, she after a time showed spinal motor symptoms, and was unable to walk. Reflex action and muscular sense were gradually impaired or abolished, while there was great hyperæsthesia. The trophic fibres were also impaired, as was shown by wasting of the legs, and the presence of bed-sores. After death the upper part of the spinal cord was found crammed with miliary sclerosis. This, therefore, seemed a case of what was called hysterical paraplegia; but yet an organic affection was found on post-mortem examination.

Dr Smart had listened with much interest to the paper, which was an excellent model of clinical research. He did not rise for the purpose of going into Dr Stewart's paper, nor yet into cases of his own. He only wished to allude briefly to two such. The first was that of a gentleman in middle life, actively engaged in business, and physically a powerful man, struck down suddenly with profound paraplegia. There was complete loss of motor power without appreciable impairment of the sensory. The treatment he adopted was quinine in five-grain doses, with one-third grain of extract of belladonna given thrice daily. This was continued for months with occasional intermissions, and now he was glad to say there was marked improvement. As to its pathology, he

believed that the paraplegia was due to pressure of diseased bone on the motor tract of the spinal cord; and the progressive recovery now taking place was explained by the cord becoming gradually accommodated to the narrowed canal. He only wished further to say, that ergotin in the form of the liquid extract had been most useful in accelerating recovery. The second case was that of a young lady, æt. 22, with slight lateral curvature and struma. There was the usual pain, with motor and sensory paralysis. The treatment adopted was mainly constitutional, combined with rest. The result was, that anchylosis took place, with complete recovery. In conclusion, he thought they were not justified in allowing such cases to pass, without attempting, by the help of physiology, to get at their exact nature. It would only be in this way that their treatment would be satisfactory.

Dr Grainger Stewart felt indebted to the Society for the reception accorded to his paper. In regard to the question raised by Dr Wyllie, he was quite alive to the importance of the connexion between paraplegia and such diseases as rheumatism, syphilis, and diphtheria; but in none of this series of cases had such causes been in operation. The cases Dr Wyllie had described were full of interest, and he would be glad to hear a more detailed account of them. As to Mr Hamilton's remarks, he had listened with much pleasure to his descriptions of the lesions, primary and secondary, resulting from pressure; and had intended that one of the points brought out in his own comments on the first case should be the recovery from the one, and the avoidance of the other set of changes. Patients now and then presented themselves, in whom those lesions had so far advanced as to be no longer curable. With regard to the morbid anatomy of diphtheritic paralysis, he could not speak, as he had not had a fatal case. Much of what Mr Hamilton had said with regard to it was both interesting and new to him; but it appeared that the clinical history of cases made it difficult to understand how communications of the kind referred to could have occurred. Some years ago, for example, he had treated several cases of diphtheritic affections which closely simulated locomotor ataxia. One of them had, indeed, been regarded as an example of that disease, but certain circumstances having suggested the idea that diphtheria might be the cause, inquiry was made, a history of sore throat was elicited, and by correspondence with the doctor of the district from which the patient came, it was ascertained that diphtheria had been prevailing at the time, and that he had probably had a mild attack. In a few weeks the patient got well. It seemed difficult to explain such cases as these by anything as yet suggested. Mr Hamilton's statements as to urinary paraplegia were also very important. Reference was made to the observations, which showed that some cases at least of so-called reflex paralysis are due to extension of disease along the nerves to the nerve-centres. With regard to

Dr Clouston's description of the state of the cord which he had met with, he thought it would be very useful if a detailed account of the patient's condition during life, as well as of the post-mortem appearances, could be got. Dr Smart's clinical experience also deserved more detailed description. Some of the points he had alluded to were touched upon in the part of Dr Stewart's paper which there had not been time to read—in particular, the use of ergot, and the indications for its employment. He would be glad to know Dr Smart's experience with regard to these points. His own did not quite bear out that of Brown-Séquard.

Dr Smart explained, that he gave ergot in those cases where, from hyperæmia or otherwise, it was necessary to diminish the circulation in the cord. Strychnia, on the contrary, having an opposite action, was given when the cord required to be stimulated by an increased blood circulation.

OBSTETRICAL SOCIETY OF EDINBURGH.

SESSION XXXV.—MEETING IX.

Wednesday, 26th April.—Professor SIMPSON, *President, in the Chair.*

The minutes of last meeting having been read and approved,

I. *Dr James Young* showed a HEN'S EGG, which presented a peculiar form, somewhat of the shape of a dumb-bell. He could give no information about it, but the appearance being so peculiar, he had brought it up to the Society. It contained only a small quantity of albumen.

II. *Dr James Young* read a communication from Dr Porteous, of Pathhead, Kirkcaldy, entitled "INTERESTING OBSTETRICAL PHENOMENON." On Thursday 13th April, I was called to see a girl in labour. She said she did not expect to have been confined until the end of June. She had been perfectly well during her pregnancy, and when seized with the first labour pain (which ruptured the membranes) she was preparing her husband's dinner. On examination, I found the os perfectly dilated and the head presenting; after one or two pains, the child was expelled with so much force that the umbilical cord was torn. Immediately after the expulsion of the child, a large quantity of clear fluid rushed out as if another "bag" had given way. Very severe pains now followed in rapid succession, and on again examining, I felt something resembling a child's head, which I, with a little difficulty, removed, and found to be an entire healthy placenta, with what seemed to be the commencement of an umbilical cord of about half an inch in length. The pains still continued with severity, and on examining the cord I found it of a yellowish colour, putrid, and so spongy that traction was

inadmissible; so, passing the hand into the vagina, I brought away a large placenta, of the same yellowish colour as the cord, and putrid. On raising it with the finger and thumb, its own weight tore it as if it were putty. The child is now five days old, well formed, remarkably small, seems healthy, and eagerly "takes the breast." The mother says she has always been healthy, and seems to be quite free from venereal taint. She is nineteen years of age. Has only been married five weeks, and had concealed her condition from her parents, although she lived with them, until the membranes were ruptured, one hour and a half before the infant was born. These, I think, are the facts of this remarkable case, and I should much like to hear the various theories regarding it: As to the use of the unattached placenta; how a healthy child was nourished through a putrid cord and placenta, etc. I may add, I carefully examined for a blighted ovum or remnant of a second child, but found none. It was the second placenta, which was of a yellowish colour, and attached to the fœtus by the yellowish umbilical cord, that was putrid. 1st, The fœtus was delivered before either placenta. 2d, The healthy and unattached placenta came shortly after child. 3d, The putrid placenta, after a considerable time and with severe pains, came away.

Dr Milne thought the case a puzzling one. He considered it possibly might be a case of placenta succenturiata.

Dr Underhill thought the appearance of the cord might be accounted for by the presence of meconium in the liquor amnii.

Professor Simpson thought it impossible to determine the exact nature of the case without examination of the two placental bodies. He considered that possibly it might be a case of twins, one of which had perished *in utero.*

III. *Dr Macdonald* read a paper on ALBUMINURIA IN PREGNANCY AND PARTURITION, and its relation to PUERPERAL ECLAMPSIA.

Dr Matthews Duncan thought gratitude was due to Dr Macdonald for having brought his experience before the Society. It was evident throughout the paper that Dr Macdonald was groping about to find a theory of these cases. At present no theory could be said to prevail. Formerly the plethoric theory was in vogue, and every woman was bled. We were all, in spite of ourselves, much guided by our own theories, although professing empiricism. The next theory was the uræmic. This also had been disproved. Then came that of Traube and Rosenstein, which was on the whole most prevalent, and, in his opinion, better than the others, or, at all events, the one most likely to form the basis of future explanations. Dr Duncan then alluded to the important case of tetaniform convulsions, formerly reported to this Society by Dr Macdonald. This case he thought would turn out to be a most valuable one in the philosophy of convulsions. As to the cause of the albuminuria: he did not think there was special pressure on the renal veins in preg-

nancy, and would like proof that such was the case. It had never been found that pressure below the kidney produced albuminuria, although pressure above, as when the veins were tied, might cause it. In his opinion the whole history of these cases was not consistent with pressure. He had seen cases of albuminuria with and without convulsions occurring, and also recovering, during pregnancy; and if pressure were the cause, it should have been otherwise in such cases. In abdominal tumours you had great pressure, and generally no albuminuria. Exposure to cold was a common cause of albuminuria in puerperal as well as in other cases. He thought that a careful examination of the condition of the blood, along with post-mortem examination in all fatal cases, and the careful study of such cases as that already referred to, as having been brought before the Society by Dr Macdonald, would eventually clear up the subject. Many careful observations on the condition of the blood in pregnancy, parturition, and the lying-in state, had been made by the late Dr Joseph Hardie, but he feared these had been lost through his untimely death.

Professor Simpson was of opinion that it was not proved that pressure had nothing to do with the production of albuminuria in these cases. The analogy between ovarian cyst and pregnancy was not complete. Although not the only element, yet we could not afford to lay aside pressure altogether as a probable cause of this condition. As regards the convulsions, Traube's theory was undoubtedly the most prevalent; but many elements must be taken into account in studying these cases. If we looked at the records of cases such as were to be found, for example, in the last report of the Rotunda Lying-in Hospital of Dublin, by Dr Johnston, which had just been presented to the Society, it was manifest that illegitimacy of the offspring, and the social condition, primiparity, and general constitutional condition of the patient, were important factors in the causation of puerperal eclampsia. The state of the patient's mind and nervous system must be taken into account, as well as the changes, physical and chemical, in the blood; and, besides the modifications in the circulatory apparatus common to females during pregnancy, there might in some be found special conditions which gave a predisposition to albuminuria, or to the development of eclampsia, without the intermediate renal disorder. The question, Why should one woman be affected and not another? required answer. On the whole, he thought the paper a valuable one.

Dr James Young thought Dr Macdonald might continue his paper at a future time, more especially with reference to treatment.

Dr James Carmichael was much interested in the subject. His impression from practical experience was, that the causes of albuminuria and convulsions in these cases were very various. In many cases, might not there be some reflex action at work, induced by the great changes which were going on in the uterus and mem-

branes, more especially at or near the full term of pregnancy, acting on a constitution predisposed to derangement of nerve action? Then, doubtless, it would yet be proved that blood changes were fruitful causes of such conditions. There was also as little doubt that the centre of all nerve action, the brain, must be looked to in order to explain others.

Dr Macdonald briefly thanked the Society for the manner his paper had been received, and signified his intention of rendering it more complete on a future occasion, more particularly with reference to treatment.

Part Fourth.

PERISCOPE.

Abeles (*Wien. Med. Jahrb.* 1876, ii. Heft) found that when the liver was put in boiling water immediately after an animal was killed, the decoction was free from sugar, in this respect thus confirming Schiff, Ritter, and others, who came to an opposite result to that obtained by Pavy. If the liver is not put into the water with sufficient rapidity a sugar-producing ferment is formed. When the decoction is allowed to remain over night at a temperature under 10° C., sugar is found in it on the following morning, from which it is inferred that a ferment has formed in the cold decoction. A sugar-producing ferment was isolated from a decoction of liver, and in a less active form from decoction of muscle. From the experiments it is inferred that the ferment is a *post-mortem* product.

By another series of experiments Abeles tries to show that glycogen is not converted into sugar by the blood. The inferences drawn from them are that, 1. A solution of glycogen injected into the bloodvessels was not followed by a greater proportion of sugar in the urine than when an equal quantity of water was injected; 2. When glycogen was injected subcutaneously there was no sugar found in the urine; 3. The blood has not the power of converting glycogen into sugar. Investigations regarding the condition of the circulation in the liver under various artificial influences can thus teach us nothing regarding the nature of diabetes. It is of no consequence as far as this point is concerned whether a greater quantity of venous or arterial blood flows through the liver, because the blood is in itself not an agent in the production of sugar. If certain injuries to the nervous system are followed both by dilatation of the arteries in the liver and by diabetes, these effects may not be in the relation of cause and

effect, but be both produced by the same cause. The author concludes by stating that no known fact enables us to state with certainty that the sugar in the diabetic urine of a person suffering from that disease was ever present in the liver as glycogen.

The *New York Medical Journal* for March contains an interesting paper on the causes of gleet, by Dr H. B. Sands. The author controverts the views held by Dr Otis, on the invariable connexion of gleet with organic stricture, and shows that the urethra, while it is probably capable of a greater distension than has usually been supposed, varies greatly in distensibility in different parts of its course.

In the same number is an account of a new battery for galvano-caustic purposes by Dr B. F. Dawson. It is made of zinc and platinum, and the fluid used is a solution of bichromate of potassa with sulphuric acid. The platinum plates are provided with leaden edges to obviate heating, and agitators are used to prevent polarization. It appears likely to be practically useful, if the galvanic be not superseded by the gas cautery.

MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By W. Handsel Griffiths, Ph.D., L.R.C.P. Ed., Licentiate of the Royal College of Surgeons of Edinburgh; Lecturer on Medical Chemistry in the Ledwich School of Medicine, Dublin; Corresponding Member of the Therapeutical Society of Paris; Honorary Member of the Ontario and Chicago Colleges of Pharmacy, etc.; Librarian to the Royal College of Surgeons in Ireland.

[The author of these Reports will be glad to receive any books, pamphlets, or papers relating to Materia Medica or Therapeutics. They may be forwarded through the agencies of the *Edinburgh Medical Journal.*]

Coca.—In the *British Medical Journal*, 29th April, is a reprint of a paper read before the Botanical Society of Edinburgh, by Sir Robert Christison, on the effects of coca. Sir Robert proposes to restore to this article its original name cuca. He enters at some length into the history of the plant, and states that Pöppig concluded from his observations that the Peruvian custom of chewing cuca is as seductive and injurious to health, mind, and morals as the habit of tippling in Europe or of opium-eating in the East. These statements of Pöppig are regarded as being exaggerated by subsequent observers, notably by Von Tschudi, Dr Weddell, and Mr Clements Markham. These latter represent in colours more or less strong the great utility of the cuca to the Indians in the hard labour they have to undergo. Sir R. Christison gives very interesting details of his experiments in his own person of the effects of the cuca, and thus summarizes the general results :—" The chewing of cuca removes extreme fatigue and prevents it. Hunger and thirst are suspended, but eventually appetite and digestion are un-

affected. No injury whatever is sustained at the time or subsequently in occasional trials, but I can say nothing of what may happen if it be used habitually. From 60 to 90 grains are sufficient for one trial, but some persons either require more or are constitutionally proof against its restorative action. It has no effect on the mental faculties, so far as my own trials and other observations go, except liberating them from the dulness and drowsiness which follow great bodily fatigue."

In the *Lancet* for 29th April and 6th May is also an article on the coca-leaf, by Mr G. F. Dowdeswell, in which an excellent *résumé* is given of the history of the drug, and in which details are given of original experimental observations by Mr Dowdeswell. He concludes that its action is so slight as to preclude the idea of its having any value either therapeutically or popularly, and he suggests that the subjective effects which have been attributed to it may offer a question of curious nervous idiosyncrasies.

Salicylic Acid.—(*a.*) *As an Antipyretic.*—Drs Butt of St Gall, Fürbringer of Heidelberg, and Buss of Basle (*Deutsches Archiv f. Klin. Med.*, Heft 5, 1876), were among the first to indicate the antipyretic action of salicylic acid. Dr C. A. Ewald's experience of this acid and its salts extends over 100 cases, most of them being cases of typhoid fever and other acute diseases accompanied by high fever. The minimum dose he found required to reduce the temperature effectually was 77 grains (5 grammes). He has seen 15 or 20 grammes given within twenty-four hours without producing any ill effect. He has found salicylic acid to be more trustworthy and efficacious than any other antipyretic. He states that within fifteen minutes or less of the administration a copious perspiration breaks out, and that the temperature generally begins to decline simultaneously with the outbreak of the sweating. He finds that the pulse and respiration are generally unaffected. Ewald thinks that the irritant effects which salicylic acid is sometimes recorded to have caused are due to the presence of impurities, such as carbolic acid. He agrees with Dr Goltdammer and those other writers who claim for salicylic acid efficacy in the treatment of acute rheumatism.—*Practitioner*, March.

In *Lancet*, 8th April, four cases of rheumatic fever, under the care of Dr Broadbent, are recorded as having been treated very beneficially by salicylic acid. Dr Broadbent says that the mode of administration adopted by Stricker consists in the giving of 20 to 30 grains every hour for six doses. In the above cases it was found that after the first dose the temperature invariably rose for a short time, but then gradually fell, and a decrease in the pulse-rate also occurred. Relief from pain was always quickly obtained, and, as a rule, the patient slept well.

Dr L. Riess (*Berl. Klin. Wochenschrift*, 20th Dec. 1875) speaks highly in favour of the effect of salicylic acid in acute rheumatism.

In some of his cases a single dose caused permanent reduction of the temperature, and general improvement in the condition of the patient.

In the *Lancet*, 4th and 11th March, Dr Maclagan has an interesting paper, in which he affirms that, in November 1874, the idea occurred to him to use salicin in rheumatic fever. He gives details of eight cases so treated; of these, four were acute, three sub-acute, and one chronic. From his experience he concludes:—1. That in salicin we have a valuable remedy in the treatment of acute rheumatism. 2. The more acute the case, the more marked the benefit produced. 3. In acute cases its beneficial action is generally apparent within twenty-four—always within forty-eight—hours of its administration in sufficient dose. 4. Given thus at the commencement of the attack it seems sometimes to arrest the course of the malady as effectively as quinine cures an ague or ipecacuanha a dysentery. 5. The relief of pain is always one of the earliest effects produced. 6. In acute cases relief of pain and a fall of temperature generally occur simultaneously. 7. In sub-acute cases the pain is sometimes decidedly relieved before the temperature begins to fall; this is especially the case when, as is frequently observed in those of nervous temperament, the pain is proportionally greater than the abnormal rise of temperature. 8. In chronic rheumatism, salicin sometimes does good where other remedies fail; but it also sometimes fails where others do good. In the *Lancet*, 15th April, Dr Maclagan reiterates his preference for salicin, on the grounds that it is less apt to be impure than the acid, that it acts in smaller quantity, is more agreeable to take, and never gives rise to unpleasant effects. Dr Senator (*Centralblatt fur die Medicinischen Wissenschaft*, 1st April) calls in question the accuracy of Maclagan's views. He supposes that salicin acts by becoming changed in the system into salicylic acid.

In the *Lancet*, 29th April, Dr F. P. Atkinson records a case which fully bears out what Dr Maclagan has stated as regards the value of salicin in the treatment of rheumatic fever.

Stricker (*Berlin. Klin. Wochenschrift*, 3d January) writes that perfectly pure salicylic acid does not cause the unpleasant results which frequently attend the administration of the commercial acid. He gives it, in acute rheumatism, in half-gramme or gramme doses every hour, in the form of powder enclosed in a capsule. He states that all the patients thus treated were not only relieved of the fever, but also of the local symptoms, within forty-eight hours, most of them within a much shorter period. As far as his observations go, he finds that the more acute the case the better the action of the acid. He considers it best to begin the treatment in the morning.

Dr Moeli recommends the use of salicylate of soda in fever in doses of four or five grammes. The effect of a dose he found, as a rule, to last for twenty-four hours. In healthy persons the salt appears to have no effect on the temperature, and, according to Fürbringer, the same is true of salicylic acid.

Dr Köhler of Halle (*Centralblatt Med. Wiss.*, 1876, Nos. 10-11) shows that salicylic acid and salicylate of soda when injected into the blood in rabbits diminish blood-pressure and the frequency of the pulse and respiration. He argues that the acid becomes converted in the system into its soda-salt, and produces its physiological action in this form. If this be true, the salicylate of soda is preferable to the acid, as the action of the former is more direct. Köhler affirms that the soda-salt has a distinct power of reducing the temperature of the body not only in fever but also in health. The discrepancy between the statements of Riess and Goltdammer, who say that the only effect of salicylic acid on the pulse is to make it stronger without diminishing its frequency, and the assertion of Nathan, who avers that it lessens the number of pulse-beats and reduces the respiration, may be more apparent than real, for the latter investigator gave the drug in much larger doses.—*Medical Times and Gazette*, 6th May.

(*b.*) *In Ague.*—Dr Arnold Hiller (*Deutsches Archiv f. Klin. Med.*, Heft 6, 1875) finds that salicylic acid is greatly inferior to quinine as a remedy in ague, its action being much weaker and less persistent. The results of the investigations of Dr L. Riess (*Berl. Klin. Wochenschrift*, Nos. 50 and 51) and of Professor Senator are confirmatory of Dr Hiller's views.

(*c.*) *In Diphtheria.*—For those who can gargle, Dr Wagner of Fribourg recommends the following formula:—Salicylic acid, 150 parts; alcohol, 15 parts; distilled water, 150 parts; to be used every two hours. He reports fifteen serious cases as being cured by this method. For children too young to gargle he gives the acid in water or wine in doses of $1\frac{1}{2}$ to $4\frac{3}{4}$ grains every two hours.—*Canada Medical Record*, March.

(*d.*) *In Offensive Breath.*—Dr Da Costa gives 5 grains of the acid with a drachm of glycerine in half an ounce of water three times daily as a preventive of foul breath and offensive expectoration. The addition of a little borax renders the acid more soluble.—*Canada Lancet*, 1st March.

(*e.*) *In Dysentery.*—In the *New York Medical Journal* for February it is stated that, at St Francis's Hospital, cases of acute dysentery have been successfully treated by salicylic acid. Thirty grains were given daily.

(*f.*) *In Venereal Disease.*—Dr G. H. Boyland treats venereal disease with injections of salcylic acid. In the inflammatory stages the strength of the injections did not exceed 1 in 200, but in the latter stages injections of the strength of 1 per 100 were used.—*American Journal of Medical Sciences*, October 1875.

(*g.*) *In Aural Diseases.*—Dr Bezold finds that the acid acts well as a parasiticide, and rapidly destroys oto-mycoses. Perforations of the membrana tympani rapidly cicatrize when treated with injections of salicylic acid, and it arrests the development of germs of gonidia. In acute or chronic suppurative inflammation good effects

have resulted from the employment of injections of an alcoholic solution of the acid. Dr Chisholm uses the acid chiefly in the form of powder with calcined magnesia or oxide of zinc, in the proportions of one part of the acid to two of magnesia. The powder is blown into the ear through a quill, the organ having been previously thoroughly cleaned.—Quoted in the *London Medical Record*, April.

(*h.*) *As an Application in Burns, etc.*—Dr Ogilvy Will (*Lancet*, 18th December 1875) recommends the use of an ointment of the acid (half a drachm to a drachm of the acid and seven drachms of simple ointment) as an application to burns. He speaks highly of the efficacy of the acid in the form of ointment in the treatment of eczematous affections.

Bromoform.—When obtained pure, as by Rabuteau's process—namely, by the action of an alkali on bromal—bromoform appears as a clear heavy fluid with an agreeable odour. In its action it resembles chloroform closely. The inhalation of the vapour of it gives rise to excitement, which is followed by deep sleep, in which there is complete anæsthetic relaxation of the muscles and dilatation of the pupil. The awakening from its effects takes place tolerably rapidly.—*Practitioner*, September 1875. Rabuteau reported to the Société de Biologie some cases showing that bromoform applied to the skin produces anæsthesia, without the painful and revulsive effects occasioned by the application of chloroform.—*Gaz. Hebd.*, 7th May 1875.

Iodoform.—M. Tarnier relates a case of a woman, aged 32, married 17 years, who suffered from extreme hyperæsthesia of the vulva, a condition which was completely relieved by dusting over the parts with powdered iodoform. He also employed iodoform successfully in a case of fissure of the anus, which resisted all other treatment.—*Journal de Med. et de Chir. Pratiques.*

Dr Lazansky relates the treatment by iodoform of many cases of specific ulcerations after buboes, ulcerating and moist condylomata, ulcerations after gummata, and ulcers of the leg. It was applied either in the form of powder or suspended in glycerine and alcohol, or dissolved in ether (1 part in 15). Internally it was given in the pillular form.—*Vierteljahreschrift für Dermatologie und Syphilis*, 1875.

Iodide of Lead.—Schönfeldt prefers iodide of lead to other metallic iodides, on the ground that in small doses its action is not irritant. It does not disturb the organism, or produce salivation like mercurial preparations. It may be given internally in doses of from two to three grains. From half a drachm to a drachm rubbed up with an ounce of lard forms a good ointment, and the addition of glycerine facilitates its absorption. In cases of lupus, syphilitic growths, nasal polypus, and in cases of indurations, exudations, and tumours, he has employed the iodide of lead with success.—*Archiv*

für Pathologische Anat. und Physiol. und für Klin. Med., December 1875.

Iodide of Silver in Hooping-cough.—Dr R. Bill (*Obstetrical Journal,* December 1875) relates that he has treated 100 cases of hooping-cough with nitrate of silver with uniform success. He gives 1-8th grain thrice daily. In nearly every case the cough had lost the "hoop" by the end of four weeks, and was quite well in six weeks. He states that its superiority to bromide of ammonium was most marked.

Vivisection: A Satire.

Old women of both sexes have combined
To raise a hubbub in the public mind;
They make a fuss 'bout so-called vivisections,
And scatter frantic *bosh* in all directions.
With arguments as weak as water-gruel,
They try to prove: that Doctors all are cruel,
And take delight in giving needless pain
To living animals—for purpose vain.

"What! Shall these ruffians bone our cats and dogs,
To rip them up alive as they do frogs?
Perish the thought! we'll go to Parliament,
And get a Bill such horrors to prevent."
Such is their cry; and sure enough a Bill
They've got, which, if it pass, must do much ill.
A heavy blow undoubtedly 'twill give
To Science in Great Britain, we believe.
Thus fettered—Physiology must die,
Or to enlightened and free countries fly,
To seek that progress which is here debarred
By stringent laws, which Science disregard.

But, I would ask, where's the consistency
In legislation such as here we see?
If one, on some important object bent,
Should on a cat or dog experiment,—
Do that, which not delights him, but which shall
Haply bring health to man or animal,—
He may before a Justice of the Peace
Be haled at once, nor there obtain release,
Until a penalty, if proved the case,
Of fifty or a hundred pounds, he pays.
And yet that Justice haply well hath dined—
'With fair round belly, and good capon lined'—
And would astonished be if you should say:
That capon you enjoyed got but *foul* play,
Since, by a painful operation, it
Was for your sumptuous table rendered fit.
That oyster, which you swallowed, when in life
By force was opened with a cruel knife;
Pepper and vinegar were next applied,
And then it down your throat alive did glide.

Perhaps crimped curdy salmon was a dish
Which in your *menu* formed your course of fish.
But know you how that crimping was effected?
'Twas neither more nor less than vivisected.
Its quivering muscles, whilst it lived, were cut,
That you your appetite with them might glut.
To *Mayonnaise d'Homard* you don't object,
But even here I'd have you recollect:
That poor crustacean, upon which you thrive,
Was in a pot of water boiled alive.
But, to proceed, I'd next attention draw
To that prime relish *Paté de foie gras!*
Oh, what a fearful, horrible abuse
The torture practised on the wretched goose!
Boxed closely up before a roaring fire,
In order that its liver may acquire
Fatty disease on which *gourmands* may feast
Oh, cruelty unmatched in man or beast!
That eels are skinned alive, that we well know;
Is it not monstrous that it should be so?
For I am not persuaded that the eel—
To it accustomed—does the less it feel;
Why should the eel not get by law protection
From this inhuman, torturing vivisection?
Your veal you don't approve unless 'tis white,
To gratify your palate and your sight;
This object to attain poor calves are bled
By a slow process until they be dead;
And this, I think, you must allow is really
Experimenting on a *corpus vile.*

"This not applies to me, I'm no *gourmet*,"
His Worship in reply to this may say;
"I'm a plain liver—health and exercise
I in field sports seek out—you'll think *that* wise."

Then I rejoin: For health and pleasure you
Fly to field sports;—but say, is this not true:
Do those field sports not cause much suffering
To fox, or hare, or bird upon the wing?
You chase with *many* dogs *one* fox, which flies
Panting in agony—and ere it dies
Its precious brush you amputate; a prey
To gloating hounds its body's thrown away.
So with the hare—poor timid thing—its woe,
When chased by hounds, none but itself can know;
How like a child's in pain those piteous cries
Which cause a shudder as the victim dies!
Or you've a rabbit-warren, it may be,
A source of profit on your property,
And the poor rabbits in the trapper's snare
Protracted pain for hours may suffer there.
'Gainst vivisection you, an angler, rail,
Yet writhing worms you on your hooks empale;
Or play the struggling trout, in spirits gay—
'Tis pain to them, although to you 'tis play.
Ah, has it ever been your fate to watch
The cruel doings at a pigeon-match?

There, in a trap pent up, each pigeon lies,
Until the sportsman "Pull, I'm ready," cries,
Then up it flies, or cowers upon the ground,
As if it pity sought which ne'er is found.
Chance of escape is small—too oft 'tis vain—
The slaughter lasts for hours—and all for—gain.
To tell of steeplechases do we need,
With danger fraught to rider and to steed,
Where many a broken back and broken knee,
And many a bloody flank and weal we see,
Which show what suffering has been undergone—
That bets may be decided—money won.
You vivisect by thousands every day
Young bulls and lambs in a most painful way;
Yet for that pain you do not care a button,
For you won't do without prime beef and mutton.
As for young boars and swine, they must bear aching,
That you for breakfast may have luscious bacon.
Young colts, too, must to torture be subjected—
To make them docile they are vivisected.
My heart has bled within me, I confess,
When I have seen a keeper merciless
Lashing a pointer dog most savagely,
Because—poor brute—obeying instinct, he
Had dared to start a bird, or chase a hare;
What agonizing cries then rent the air!
To render pet dogs *à la mode* one hears
Of tails curtailed, as also of cropped ears;
And yet you spinsters, who don't frown at that,
Are shocked if in experiment a rat
Should have its tail cut off—and raise a storm
Though pain to save we have used chloroform.
The warblers of the grove are killed—for what?
To form the trimming for a lady's hat!
A cruel and fantastic *mode* indeed—
What in barbarity can that exceed?
This catalogue I might *ad infinitum*
Prolong—for horror I can scarcely write 'em;
But I must stop here—having proved—that's flat—
You gulp a camel, and strain at a gnat.

And now I ask the question: Is it sense
To launch against a *few* experiments,
By a *few* scientific persons made,
A violent and ignorant crusade?
By anæsthetics, for the most part, pain
In these experiments—we can maintain—
Is quite excluded; only of a few
That much pain is experienced is it true.
But weigh the pain against results for good
Which have to man and animals accrued
From such experiments, then you must own
That men of science should be let alone.
They're not the cruel monsters you depict,
It gives them pain when pain they've to inflict;
Within their bosoms hearts more tender lie
Than in the breasts of those who them decry.
'Tis not for pelf they work—alas, 'tis true
That Science in rewards scarce meets its due.

But what of that? patient they persevere—
Lured on by hope, and undeterred by fear—
In search of knowledge, feeling that the hour
Will come at last which gives that knowledge power.
As criminals, why should you men like these
Make liable to visits from Police?
And why with cruelty—in accents rude—
Brand those whose work is for the public good?

That there may be abuse, may be confessed—
'Gainst wanton cruelty we all protest—
Then 'gainst abuse take measures if you will,
But only don't choke Science with a Bill.
But wherefore laws exceptional enact,
Restraining men of science, when in fact
Untouched you leave, as has above been told,
Pains great—more numerous a thousandfold,
Which animals are fated to endure
For ends than those of science far less pure?
Let not our legislators be misled
By what is foolishly and falsely said;
For us—we'll fight the battle, and not fail,
For great is truth, we know, and will prevail.

EDINBURGH, 15*th June* 1876.

Part Fifth.

MEDICAL NEWS.

JAMES MACLAREN, L.R.C.S.E., Senior Assistant-Physician, Royal Edinburgh Asylum, has been appointed Medical Superintendent of the Stirling District Asylum, *vice* F. W. A. Skae, M.D., resigned, on his appointment to a Commissionership in Lunacy for New Zealand.

GENERAL MEDICAL COUNCIL.—The meetings of this body are now so fully reported in the daily newspapers that little remains for us to do but to give a general idea of the subjects taken up and the results arrived at. The session was an exceptionally prolonged one, and characterized by a large amount of speech-making; some of which, we cannot help feeling, was perhaps more suitable in a debating society of clever lads than in a meeting of legislature for the profession. The President's address pointed out a remarkable result of the higher education of medical students, namely, that the proportion of medical men to the population is gradually decreasing, and that a danger is imminent that medical advice may soon be inaccessible to vast numbers of the people. Committee work, and the reports as to proportion of rejected to passed candidates, occupied the second day of the meeting. Conjoint scheme, lunacy certificates, and petitions from teachers of materia medica, occupied the next day. The Vivisection Bill was discussed at great length and with much cleverness; and important amend-

ments were suggested and drawn up. The admission of women to the registers, the conjoint scheme, visitation of examinations, and other topics, furnished excuses for numerous brilliant orations and combats of fence—but when it is all over, it is rather difficult to discover what has been the result. A petition to Government, which is not likely to be granted, seems to bulk most largely.

It is proposed to erect a bust and obtain a portrait of the late Dr Parkes, for the Mess-room of the Army Medical School; also to found a Parkes Prize in the Army Medical School. Officers of the Army and Navy wishing to subscribe to these objects may do so to the Treasurer, Dr F. S. B. F. de Chaumont, Army Medical School, Netley.

OBITUARY.

John Young Myrtle, M.D., F.R.C.P.E.—We have again to record the death of a physician who had practised for upwards of forty years in Edinburgh, with the general esteem of his brethren in the profession, and the confidence of his patients. This is saying much, in these days; when the hurry of life, and the thirst for money, are so apt to tempt not a few from the quiet and unobtrusive course of patient performance of duty. Dr Myrtle seldom ventured into print on professional topics; but he loved his calling, endeavoured to excel as a practitioner, and entered with friendly interest and sympathy into the circumstances, whether of joy or sorrow, which environed those who consulted him. He was constitutionally a man of benevolence, which manifested itself even in consideration and care for the lower animals. He seldom permitted his carriage-horses to be pushed beyond a certain pace; and many a day, when the streets and roads were slippery or otherwise uninviting, was he seen walking, that their welfare might be secured. "A righteous man regardeth the life of his beast." And Dr Myrtle *was* a good man in the highest sense. Like all of us, he had his weakness; and in his case, it was a flavour of vanity; but it gradually evaporated as he advanced in years, and was withal so transparent and ethereal as almost to give a charm to his individuality. He had been in declining health for some time, yet said little about his complaints, but continued in harness to the last. His death, which took his associates by surprise, happened on the 6th of June 1876, at the age of sixty-four

The late Dr J. R. Baillie Cormack.—From the *Union Médicale* of 18th May we extract a portion of a touching and generous tribute to the memory of Baillie Cormack, whose promising and already distinguished career terminated, at the age of 27, on the 21st April last at Hyères, in the Riviera, where he went at the beginning of winter, on account of a sudden manifestation of pulmonary disease :—

"Malgré son origine, ce jeune homme n'était pas un étranger pour nous. Les soins dévoués dont il entoura nos malades et nos blessés, dans des jours de malheur, l'abnégation dont il fit preuve alors, justifient le modeste hommage que nous venons rendre ici à sa mémoire. Qu'il nous soit permis, à nous qui l'avons connu et aimé, et qui avons été à même d'apprécier ces charmantes qualités, de consacrer quelques lignes au souvenir d'un ami. Nos rélations datent de cette lamentable époque de siège où la colonie Anglaise de Paris sut déployer toutes les ressources de la charité pour venir en aide à nos misères. Parmi ceux qui se montrèrent alors les plus dignes de notre reconnaissance figurait en première ligne Sir John Rose Cormack, médecin en chef de l'Hôpital Hertford de Paris. Partout où se portait l'ambulance Anglaise, on était sûr de rencontrer Sir Cormack; et partout, sur le champ de bataille et au milieu des plus grands dangers, son fils n'a pas cessé de l'accompagner un instant. Parmi les périls les plus redoutables, il fut le compagnon assidu de son père, comme aussi son aide le plus intelligent dans la pratique des plus graves opérations de la chirurgie. Sa santé, ébranlée déjà par tant de fatigues et des privations, se rétablit pourtant. En 1872, nous subissions ensemble les épreuves du concours de l'externat. Dans les deux années suivantes, nous avons fréquenté la même conférence préparatoire à l'internat. C'est alors que je pus connaître davantage cet aimable jeune homme, qui cachait, sous une modestie extrême, les connaissances les plus sérieuses et les plus variées. C'est vers le mois d'Octobre dernier qu'il ressentit les premières atteintes d'un mal que ne pardonne jamais; et bientot on jugea nécessaire de l'envoyer sous un climat plus doux. Mais en dépit de tous les soins les plus dévoués la maladie fit des progrès rapides. Il s'éteignit, à Hyères, dans les bras de son père, le 21 Avril dernier. Il aborda la mort avec calme et résignation, ne témoignant qu'un seul regret—c'était de voir anéanties à jamais les espérances que sa famille avait fondées sur son avenir. Devant un pareil malheur le cœur se brise, et tout ce qu'on pourrait ajouter serait superflu. Nous nous enterons donc là, ayant voulu seulement affirmer que la jeunesse Française n'oublie pas ceux qui ont aimé et servi la France.—GASTON DECAISNE, *Interne des Hôpitaux.*"

At a meeting of the Committee of the Hertford Hospital, held on the 10th June, the Committee, on the proposal of Sir Richard Wallace, Bart., M.P., entered on the books the following minute:—"The Committee having received intimation of the premature death of Dr Baillie Cormack, desire to record their deepest regret at the loss of one who, since the foundation of the Hospital, has discharged his duties as house-surgeon with the greatest fidelity, zeal, and efficiency, and whose future medical career was one of so much promise. The Committee wish also to refer to his admirable conduct as assistant-surgeon of the ambulances of the Rue d'Aguesseau and Levallois-Perret during the siege of Paris and the Commune."

The remains of Dr Baillie Cormack were removed from Hyères to Paris. After a funeral service in the English Church of the Rue d'Aguesseau, they were interred at Neuilly on the 29th April. The Paris correspondent of the *British Medical Journal*, in his interesting account of the funeral, states that the number of mourners was upwards of two hundred of both sexes, consisting of "rich friends and poor friends, English doctors and French doctors, medical students, internes and externes des hôpitaux, and nearly all the British and French Protestant clergy of Paris." He adds—"Some of the war-wounded, too, who wished to pay their last tribute of respect and gratitude, were also present."

PERIODICALS RECEIVED.

American Journal of Insanity,—April.
American Journal of the Medical Sciences,—April.
American Journal of Obstetrics,—February, April, June.
American Practitioner,—Feb. to May.
American Psychological Journal,—Feb.
Analyst,—March 31.
Annales d'Oculistique,—Jan.-Feb., March-April.
Annali Universali di Medicina e Chirurgia,—Feb. to May.
Archives Générales de Médecine,—March to June.
Archives de Tocologie,—March to June.
Archives of Dermatology,—April.
Berliner Klin. Wochenschrift,—Feb. 28 to June 19.
Births, Deaths, and Marriages, Monthly Return of,—Feb. to May; Quarterly Return,—March; Supplement for 1875.
Boston Medical and Surgical Journal,—Feb. 10 to June 8.
British and Foreign Medico-Chirurgical Review,—April.
British Medical Journal,—Feb. 26 to June 17.
Bulletin Général de Thérapeutique,—Feb. 29 to May 30.
Canadian Journal of Med. Science,—March to May.
Chicago Journal of Nervous and Mental Diseases,—April.
Chicago Medical Journal and Examiner,—Feb. to June.
Detroit Review of Medicine,—March to June.
Dublin Journal of Medical Science,—March to June.
Gazeta Medica da Bahia,—Jan. to April.
Gazette des Hôpitaux,—Feb. 22 to June 20.
Gazette Hebdomadaire de Médecine,—Feb. 25 to June 16.
Gazette Médicale de Paris,—Feb. 26 to June 17.
Glasgow Medical Journal,—April.
Indian Medical Gazette,—Feb. to May.
Journal da Sociedade das Sciencias Medicas de Lisbao,—1876, Nos. 1, 2, 3, 4, 5.
Journal de Thérapeutique,—Feb. 25 to June 10.
Journal of Anatomy and Physiology,—April.
Journal of Mental Science,—April.
Journal of Psychological Medicine,—April.
Journal of the Scottish Meteorological Society,—October.
Klinische Monatsbläter für Augenheilkunde,—Oct. to Dec. 1875; March to May 1876.
L'Année Médicale,—May.
London Medical Record,—March to June.
Medical Examiner,—Feb. 24 to April 20.
Medical Press and Circular,—Feb. 23 to June 21.
Medical Times and Gazette,—Feb. 26 to June 17.
Medizinische Jahrbücher,—Parts 1, 2, 3.
New Orleans Medical and Surgical Journal,—Jan., March, May.
New York Medical Journal,—Mar. to June.
Nordiskt Medicinskt Arkiv,—Sjunde Bandet, Fjärde Häftet; Attonde Bandet, Första Häftet.
Obstetrical Journal, — March to June; American Supplement,—Feb. to May.
Philadelphia Medical and Surgical Reporter,—Feb. 19 to June 3.
Philadelphia Medical Times,—Feb. 19 to May 27.
Practitioner.—March to June.
Progrès Médical,—Feb. 26 to June 17.
Recueil d'Ophthalmologie,—April.
Revista Medica de Chile,—Dec. to Feb.
Revue de Thérapeutique Médico-Chirurgicale,—March 1 to June 15.
Richmond and Louisville Medical Journal,—Feb. to May.
Rivista Internazionale,—March, May.
Rivista Sperimentale di Medicina Legale,—January.
Sanitarian,—March to June.
Sanitary Record,—Feb. 26 to June 17.
Siglo Medico,—June 11.
Upsala Läkareförnings Förhandlingar,—Nos. 3, 4, 5.
Veterinary Journal,—May.
Virchow's Archiv,—Jan. 26 to April 27.
Zeitschrift für Geburtshülfe und Frauenkrankheiten,—1 Band, 2 Heft.

Part First.

ORIGINAL COMMUNICATIONS.

Article I.—*The Treatment of Erysipelas by the Muriated Tincture of Iron.* By Charles Bell, M.D., F.R.C.P.E., etc.

It has been stated by one of high authority, that it was his belief "that a member of a university should watch the current opinions on the subject he teaches, and endeavour to check the wrong bias which fashion or accident are continually giving to medical studies, to the neglect of sound doctrine and approved authorities."[1] If this is a special duty of Professors, it is one which ought to be exercised with great discrimination and sound judgment; otherwise, from their high position, and the influence they naturally acquire over the minds of their students, they may become the means of checking important discoveries, and valuable suggestions for the treatment of disease, by which the advance of science may be interrupted, human suffering needlessly prolonged, and mortality obviously increased. Every suggestion which has for its object the relief of human suffering should be thoroughly investigated, and not condemned merely because it is new, and not quite in accordance with existing practice, which has been too often founded on erroneous views of the cause and pathology of disease. The necessity for and propriety of these introductory remarks have been forcibly impressed on me by the perusal of the recently published opinions of the Professor of Surgery in our University, who, in his lectures on surgery, has, without due consideration—as it appears to me—ventured to express most erroneous views regarding the curative effects of the muriated tincture of iron in erysipelas.

Having paid particular attention to the subject of erysipelas, and having had the satisfaction of laying before the profession the treatment of the idiopathic form of the disease by the muriated tincture of iron, suggested and long successfully practised by my brother George Hamilton Bell, and which I have proved is equally beneficial in every other form of the disease—it need not be wondered at if I should avail myself of the opportunity afforded

[1] Practical Essays, by Sir Charles Bell.

me by Professor Spence, of not merely controverting what I consider to be very narrow, if not altogether erroneous, opinion on a subject of great practical importance, but to seek to vindicate the position I was led many years ago to take up in the matter. The primary views I have hitherto advocated as to the nature and sources of erysipelas may be briefly stated thus:—In whatever form erysipelas may appear, it is the effect of blood-poisoning from improper diet, and exposure to impure air; and, although in some instances it is apparently the consequence of infection, it may in reality be produced by those affected being exposed to the same vitiated source, and also by there being a peculiar idiosyncrasy in certain families which induces several members to be affected at the same time, yet not residing constantly in the same locality. There is also reason to suspect that, after exposure to the exciting cause, the disease may lie dormant in the system until stimulated into action by some irritation or excitement, or even by some depressing circumstance. In several of these respects it resembles diphtheria and scarlatina, as well as puerperal fever; but more especially in the fact that all these diseases yield to the same mode of treatment

It may not be uninteresting to refer to some circumstances which seem to illustrate and confirm these views. That erysipelas is the result of exposure to a vitiated atmosphere is, I think, rendered obvious by the following cases reported by the late Dr Begbie, senior, who relates that a locality in the New Town of Edinburgh became vitiated by the effluvia arising from putrid animal and vegetable matter in the shops on the ground floor and sunk flat, and that in one of the houses above, entering from a cross street, all the inmates became sickly, and the man-servant was seized with a severe form of erysipelas. He was treated according to the practice then in vogue, and his "convalescence was slow and unsatisfactory, so that four or five weeks elapsed before the patient was able to resume his duties."

The family removed to another house, where the air was pure, and they soon all recovered their health, with the exception of the nurse, who became affected in a few days after the removal with erysipelas of a most inveterate character, thus showing that the disease must have been dormant in the system.

The wife of one of the shopmen in the vitiated locality referred to, "who was in the daily habit of attending her husband's place of business, and assisting him in conducting it, was, during the progress of the first of these cases of erysipelas, carried home in the pains of childbirth, and died on the fourth day after delivery, with obscure indications of puerperal peritonitis, and rapid sinking." In this case we have an example of the same vitiated atmosphere, giving rise to two apparently different diseases, erysipelas and puerperal fever.

The following cases give a striking example of the idiosyncrasy

which exists in some families to have several members affected at the same time. The village of the Water of Leith, celebrated for its unhealthiness from its visit of cholera, fever, and other epidemics, and where the Board of Education have chosen to erect one of their largest educational establishments, was visited by erysipelas. Two sisters, living under the same roof, apparently caught the disease from different sources, having resided apart from each other for some time, the one occupying their present dwelling, the other residing with a gentleman in a distant part of the town. At the opposite side of the same lane a man became affected, although he had no communication with the sisters; and, in succession, other three cases occurred in the same household. Thus showing that different people exposed to the same polluted atmosphere, although not having intercourse with each other, are liable to become affected with the same disease.

Dr Begbie relates another case which still further illustrates the view under consideration: "Mr B., of full habit, became affected with erysipelas, and after a tedious illness made a good recovery under the treatment of the tincture of the muriate of iron. His brother, residing in a distant part of the country, with whom he had maintained no intercourse for many years, was attacked with the disease at the same time."[1]

The following cases go to prove that similar results may occur in regard to diphtheria and scarlatina: Some years ago I was requested to attend a family occupying a large and apparently well-aired house in England. I found the youngest child, a delicate girl, was suffering from diphtheria. The head-nurse soon became affected, then the under-nurse, and in a short time eight of the family were laid up with the disease; but they all made a good recovery under the treatment of tincture of the muriate of iron. On inquiry, I ascertained that the drains were in good order, but the back-windows overlooked a large grass field, which had been recently "top-dressed," and the smell coming from it was most offensive. The disease appeared partially in the neighbourhood, and scarlatina became very general.

I was called a short time ago to see a family occupying a baronial residence in Argyllshire, situated on the banks of a loch, into which the sewage flowed. Seven of the family were first attacked with scarlatina, and, on recovery from it, two were seized with diphtheria of a severe character—the one case was followed by paralysis, the other by abscesses implicating the glands of the neck. The lady of the house escaped the fever, but she became affected with diphtheria and was very nervous; the disease was checked, however, by the tincture of the muriate of iron. The whole family made a good recovery. On examination, I found that the modern part of the mansion communicated with the older portion by means of a long

[1] Contributions to Practical Medicine.

passage, from which, especially at night, there came an offensive smell.

I am persuaded that erysipelas is most frequently the result of exposure to impure air—and in this respect it resembles the other diseases I have referred to, in all of which there is obvious blood-poisoning. If this be so, it is clear that the treatment should consist of the means which is calculated to remove the poison most rapidly from the system, and counteract its effects, without reducing the powers of life. With this view, after many years' experience, and considerable opportunities of judging, I confidently recommend the treatment with the muriated tincture of iron. I should not have thought it necessary to have repeated this opinion, having expressed it strongly in a previous paper, had I not observed in Professor Spence's recently published lectures, that he advocates the anti-phlogistic treatment practised thirty years ago; at the same time, he not only underrates the value of iron, but condemns it altogether in some cases. In example of this he says, "When the disease assumes an acute character, and is accompanied with a quick, full pulse, or in erysipelas of the head, when there is a tendency to violent delirium, iron should not be given." But the truth is, that, had he watched its effects, and understood its influence on the constitution, he would have discovered that the cases referred to are those in which the treatment by the tincture of the muriate of iron is the most immediately beneficial. In proof of this I cannot do better than quote the case of the nurse referred to in the former extract from Dr Begbie's work. He informs us that she was a fine healthy woman approaching the age of fifty. "She was seized with symptoms of acute illness, commencing with violent headache, flushed face, severe pain in the lumbar region, great febrile excitement, and high delirium. With these symptoms the erysipelatous rash appeared on the right ear, and quickly spread over the same side of the face in the course of the night. The aspect of the case at this early stage indicated a severe and lengthened illness; indeed, I do not remember to have seen for a long time one which, from the constitutional disturbance and local symptoms, threatened a more unfavourable issue." "Seeing that the case was of a severe character, I hesitated placing reliance on iron alone, and directed the abstraction of twelve ounces of blood from the nape of the neck by cupping, and the administration of a full dose of castor-oil. These means being premised, and having observed that the urine passed in the course of the day—the second of the illness—was of a red colour, and scanty in quantity, that it was loaded with biliary matter, and presented, under the microscope, numerous blood-corpuscles, and many crystals of the triple phosphates, I ordered the muriated tincture in manner recommended by Mr Bell, in doses of twenty drops every two hours, continued through the night and day. At the end of twenty-four hours there was a marked remission in all the more prominent symptoms; the erysipelas was arrested; the headache

subdued; the delirium overcome; the pulse reduced in frequency and force; the skin covered with a gentle moisture, and bereft of its burning heat; the pain in the back removed; and the urine rendered more copious, and freed from most of the blood and bile of the previous day. The remedy was continued for twenty-four hours longer; and without experiencing any unpleasant effects, the patient was convalescent at the end of the fourth day, presenting a striking contrast to the case of her fellow-servant, who, with symptoms of a less severe character, suffered from illness during many weeks."[1] Dr George W. Balfour, who is not a likely person to take an erroneous impression on any subject, says, "I have treated all my cases, upwards of twenty years, with iron, and have had no cause to regret my doing so. On the contrary, erysipelas is one of the few diseases for which I now believe we have a certain and unfailing remedy, and this whether it is infantile or adult, idiopathic or traumatic."[2]

These cases fully corroborate what I stated in my former paper; and had the Professor of Surgery made himself better acquainted with the literature of the subject, he would have hesitated before expressing himself so decidedly against the use of the iron, and would not have asserted that it should be given "only at intervals,"—and scarcely have ventured on the statement, that, "by some, iron is considered a specific in all forms of the disease, but my experience warrants me in saying that the impression is erroneous,"—without producing some proof beyond mere assertion.

It would be extremely interesting to know what Mr Spence's experience in this matter really amounts to, and I hope I may be excused in asking if he ever administered the tincture of the muriate of iron in the manner I have recommended? I put the question, because the Professor's unsupported rejection of this remedy recalls to my remembrance an expression of his predecessor in the chair, Professor Miller, who remarked to me soon after the publication of my first paper: "Your treatment of erysipelas is all nonsense." I asked him if he had ever tried it? When he candidly admitted he had not. I then recommended him, as I should now do to Mr Spence, to try it in the Infirmary, where he had an ample opportunity of watching its effects. I met him some months after, when he, with his usual cordial manner, said, "You are quite right; I have found your treatment of erysipelas to be excellent."

I am still further induced to question if Professor Spence has ever given the treatment which I have advocated a fair trial, from his recommending, in such cases as he thinks iron may be beneficial, that "it should be given in moderate doses, say from 15 to 20 minims of the tincture of the perchloride four or five times

[1] *Op. cit.*, p. 218.

[2] Notes on Practice, Monthly Medical Journal for 1853, vol. i.

a day." Such doses, even of the tincture of the muriate of iron, although they may be beneficial in the milder forms, are not sufficient to overcome the more severe and virulent attacks of the disease. The remedy must be given in the full quantity and frequency which I have recommended in order to produce its beneficial effect in the severer forms of the disease; and if he or any one expects to accomplish this desirable object by the use of the tincture of the perchloride of iron, either in erysipelas or any of the other diseases referred to in this paper, they will be disappointed, as such is the result of my experience both in erysipelas and diphtheria. Two illustrations may here suffice. I hold that a material difference exists between the effects of the two so-called similar preparations of iron—viz., the muriate and perchloride—both of which I have fully tested, and could give many instances of their marked therapeutic difference. In regard to erysipelas, I was attending a lady who was severely affected by it after a tedious attack of rheumatic fever. I ordered her to have thirty drops of the tincture of the muriate of iron every two hours; but, to my great disappointment, I found that she went on day after day without any improvement. I then asked to see the medicine she was taking, when I discovered it was the tincture of the perchloride, sent by mistake by the chemist. I immediately changed the medicine for the tincture of the muriate of iron, and in a few days the disease disappeared.

I was requested a short time ago to attend a young lady suffering under a severe attack of diphtheria. She had been taking for some time the tincture of the perchloride of iron, with little apparent benefit, as her pulse was 110, and her throat covered with diphtheritic membrane. She was put on the tincture of the muriate of iron, and had her throat swabbed with a solution of Condy's fluid several times a day. The membranous deposit rapidly disappeared, and the pulse in two days fell to 80, and in the course of a week she was quite convalescent.

In conclusion, I have again to state, in regard to the treatment of erysipelas with the tincture of the muriate of iron, that I have the most perfect reliance on it; and that when it has failed, the fault has been not in the remedy, but in the mode of administering it. I hold that no one is justified in condemning it until they have given it as recommended, and found it fail in effecting a cure in uncomplicated cases. Of course, I admit there are cases complicated with other virulent diseases, in which no human aid can be of any avail; or it may not have been had recourse to until after the system has fairly succumbed to the disease. Such cases must form an exception. In short, if any remedy is entitled to be called a specific, it is so; at all events, as much so as quinine is in ague.

My desire on the present occasion is not merely to correct what I consider to be a serious error on the part of one of our ablest Professors, whose eminence as a surgeon gives weight to his opinion;

but to repeat my conviction in favour of the treatment of erysipelas by the muriated tincture of iron, which my increased experience justifies my doing; and, consequently, in opposing the obsolete and positively hazardous practice advocated by Professor Spence—a circumstance which his own observation seems to have made him in some degree aware of; as he says, "Before leaving this subject, I would repeat the caution that, during convalescence from an attack of erysipelas, great care should be taken. The circulation is always impaired during the progress of the disease, and continues so in many cases throughout a long period of convalescence. This state is sometimes attended with a risk of fatal syncope."[1] These symptoms are just what might be expected to result from bleeding, emetics, and saline aperients combined with mercurials in such a disease as erysipelas.

Article II.—*Antiseptic for Country Practice.* By John Balfour, L.R.C.S. Ed., I.G., Leven.

The splendid results obtained through the practice of antiseptic surgery cannot but have excited in every one, liable to be called on to perform an operation, the desire to avail himself of the improvement. In large hospitals and cities, where doctors thick do congregate, to do is almost as easy as to will—but it is otherwise with the country practitioner, who may have at any moment to operate in slight cases without any assistance, and to perform a capital operation with such aid as may on the spur of the moment be available. I have twice before, in the pages of this Journal, recommended for such cases the use of the sulphurous acid wash, originally recommended by Dr Dewar of Kirkcaldy, and I again bring it forward as a valuable antiseptic, which I have now used for many years with great satisfaction in all cases of factory accidents, cuts, and lately in a case of amputation at the shoulder-joint. In the proportion of one in twelve of water, I find that it at once alleviates pain, minimizes suppuration, is easily applied, and facilitates dressing the wound, while it costs almost nothing. When the fingers are the parts injured, I have a large teacup filled with the wash put by the patient's side, and into this the injured part, covered with the thinnest rag to be had, is dipped as often as desired. Should the injured part be the hand or any other part of the body, it is supported on a pillow covered with gutta-percha tissue or oilskin, and the wash is applied by means of a little tow, which is allowed to remain in the cup. I give a short abstract of three cases of different kinds of injury, as specimens of what can be done by such simple means.

T. G., a collier, about 25 years of age, came to me on the

[1] *Op. cit.*, p. 77.

evening of the 6th May 1872. He had been crow-shooting, and a companion's gun burst; a piece of the barrel of the gun passed close in front of his body, entered the left arm about the middle of the inner surface, and lodged between the skin and the biceps, projecting partly on the outer side of the arm. A companion had extracted the piece of iron by the wound of entrance. This was between three and four inches long, very irregular, and the skin much curled up. The other wound was about half the length of the first, and not so irregular. I arranged the skin as well as I could, and applied the wash, and my patient, who had been in great pain, was relieved before he left the house—and this relief was so complete, that he enjoyed a good sleep the first night. Although part of the skin sloughed from the severity of the injury, the suppuration was so moderate, that my patient, accustomed to see serious injuries, remarked, "Why, it has na *bealed* (suppurated) at all." The wound was quite healed by the 1st June.

E. G., a factory girl, on the 14th February 1876, allowed her fingers to be caught between a wheel and pinion, and the little, ring, and middle fingers were carried through. I was sent for to the factory, and took a supply of the wash with me. I found that along the dorsal and palmar aspect of each of the fingers was a deep contused wound, extending almost exactly the length of the middle phalanx. This bone in the little finger was split longitudinally, and the distal joint was partially dislocated; the phalanges of the other fingers, though undoubtedly much bruised, had escaped fracture. After adjusting the bones, I dressed the wounds with the lotion. Sleep was enjoyed the first night. There were no bad symptoms, and by the 6th March my patient had returned to her work with the bone united, the wounds healed, and only the distal joint of the little finger stiff.

A. S., employed as a hemp-breaker[1] in one of our manufactories, on the 19th January had his right hand caught between the hemp and a shaft revolving about the rate of seventy times a minute. He lost his presence of mind, and did not throw the machine out of gear, as he might have done, and, before a neighbour could do it for him, he had been spun over more than once. The forearm was torn off near the elbow, and the humerus fractured in three places, the

[1] The hemp-breaking machine is so simple and innocent looking, that every one is ready to suppose that it must be quite easy to work. It consists of a strong frame; at one end, facing the operator's left hand, is a fixed spindle about 1½ inches square; about 18 inches or 2 feet from this, facing his right hand, is a similar spindle, revolving about 70 times in a minute. When employed, a handful of hemp is twisted round the stationary spindle with the left hand, and the right then catches a turn round the revolving one; the hemp is thus torn in two about the middle; the pressure being relieved from the revolving spindle, it is easily drawn off, put down, and the work proceeds. Woe to the unfortunate fellow whose jacket-sleeve or hand in any way gets caught between the hemp and the revolving spindle; loss of the arm appears to be the inevitable result.

highest being about the insertion of the deltoid. I was fortunately at home and saw him immediately, when it was apparent that amputation at the shoulder-joint was imperative. I was equally fortunate in getting for assistants, Dr Lyall of Leven, a young medical friend of his, and a civilian whose experience as a surgical assistant renders his aid invaluable. The shock was not great, and as soon as the necessary things were got ready the operation was performed under chloroform; the arteries were tied with carbolized catgut; the wound was freely sponged with the sulphurous-acid wash, brought together with wire sutures, and a strip of lint well wet with the wash put over it; a full supply of wash was provided, and the patient's wife and mother were instructed to keep constantly applying it. Chloral hydrate was required every night for about a week, and a cough mixture for a sharp attack of bronchitis, from which he was suffering when he met with the accident. The deep wound healed well and soundly; in eight days I had all the stitches removed, and my man was safe. He had not a very good constitution, however; the wet was beginning to irritate the skin of the back, and I substituted a simple dressing of zinc ointment for the back; the axillary glands gave me trouble, suppurating in an unhealthy manner, and a small bit of lint worked itself out of the upper part of the wound (how it got in I cannot conceive). These were untoward events, and greatly protracted the cure; still the battle was won in the first few days; there was almost no suppuration whatever of the deep wound, and the result is as perfect a cicatrix as one would wish to see. I paid my last visit on the 24th of March, and my patient has, since shortly after that time, been earning a decent living with his left hand.

Article III.—*On the Structure of Three Cervical Polypi.* By Dr C. E. Underhill.

(*Read before the Obstetrical Society of Edinburgh, 8th March.*)

In order to understand the nature of these growths, it is necessary briefly to consider the structure of the mucous membrane covering and lining the os and cervix uteri. In this description I have followed Tyler Smith and Farre; most of whose statements I have been able to verify by my own observations. The os and cervix uteri may for purposes of description be divided into two parts, which differ very materially from one another in structure; the one comprising the os uteri and external portion of the cervix, the other the mucous lining of the cervical canal.

The epithelial layer covering the external aspect of the cervix is of considerable thickness, and is squamous in character; it closely resembles that of the vagina, with which it is continuous. Immediately beneath the layer of epithelium lie the numerous villi or

papillæ. These villi are sufficiently large to be seen with the naked eye when denuded of epithelium, and I have observed them in this condition even in the very young fœtus—they are occasionally single, but sometimes two or three are united together upon one pedicle. Each villus contains a looped bloodvessel, which returns to the base of the villus and inosculates with those of the neighbouring villi. These villi are everywhere covered by pavement epithelium, which also fills up the interstices between them, rendering the external surface smooth; around the bases of the villi the epithelial cells are more numerous, crowded, and narrow than in the interstices. It will be observed that the mucous membrane of this part bears, in its anatomical formation, a strong resemblance to skin, with the exception that it has no hair follicles, and no structures resembling sweat glands; indeed, as Tyler Smith points out, it is difficult under the microscope to make out any distinct follicular structure. Underneath the villi is a dense fibrous and vascular tissue, mixed with involuntary muscular fibres.

The mucous membrane lining the cervical canal differs materially from that just described, and the transition is accomplished by the presence of a small tract of smooth surface lying between the margin of the lips of the os and the beginning of the rugæ; this portion combines the pavement epithelium and villi with mucous follicles, the epithelium being finer than that outside the cervix, but the villi considerably larger. On passing further into the cervix the epithelium changes in character from pavement to columnar, eventually becoming ciliated in the upper part of the cavity, and the villi soon disappear and give place to the penniform rugæ and the mucous follicles which cover them; these mucous follicles being lined throughout their ramifications with columnar epithelium. The viscid transparent mucus which fills them sometimes remains *in situ* even after the cutting and washing of sections.

Such being the normal structure of the mucous membranes of the os and cervix uteri, we should expect to find it reproduced in an exaggerated form in the tumours which grow from its surface. The first of the polypi I am about to describe was removed by Dr Matthews Duncan, in March 1875, from the os uteri of an unmarried woman aged 76, who also suffered from prolapse of the uterus. The polypus, which was $1\frac{1}{4}$ inches long by $\frac{3}{4}$ inch across, was attached to the edge of the os by a narrow pedicle; the free extremity terminated in several spire-shaped points, rising from the mass of the polypus; it was smooth, not very firm, and had several apertures leading into its substance. It was hardened in Müller's fluid and absolute alchohol, and sections were then cut. The sections of the body of the tumour and the spire-like processes all presented the same structure. Under the microscope, the external covering was found to consist of a closely-packed layer of very large papillæ, each papilla containing a bloodvessel; covering them

and filling the interstices between them were pavement epithelial cells of various shapes. The lowest cells are mostly rounded in form. Succeeding them, and forming the great bulk of the tissue, were cells of large size and spindle-shape, being attached to the villi in a direction oblique to their axes, and giving an isolated villus somewhat the appearance of an ear of corn. The outermost layers consist of rounded cells, becoming more and more flattened as they approach the surface; there is, however, no distinct flat layer corresponding to the epidermic layer of the normal cervix. All these epithelial cells, of whatever shape, possess very large granular nuclei. Some parts of the surface showed a few collections of cells closely resembling the nests of epithelioma. At one or more points in the circumference of each section the depressions mentioned above are seen to lead into crypts of considerable size, into which project villous processes covered with a layer of large oblong-shaped cells, which are transparent, and do not take the colouring matter. Their length is several times greater than their breadth. These crypts vary in depth and outline, according to the direction in which they happen to be cut; some showing a simple deep depression, with three or four projecting papillæ, others ramifying in an irregular and extensive manner. At the edge, where these crypts open upon the general surface of the tissue, the cells covering the villi can be seen to change from the squamous to the cylindrical type. The interior of the tumour is made up principally of connective tissue, containing a number of bloodvessels of considerable size, and bands of fibrous tissue pass across it in different directions. At some points near the base of the papillæ are large groups of round nuclei.

This appears to be an example of a form of mucous polypus denser than such polypi usually are, and to have sprung from the edge of the os uteri, leaving, as it does, combined the characters of the mucous membrane of the exterior and interior aspects of the cervix.

The second and third polypi were removed together from a patient, whose history makes them particularly interesting. I have described them both, because they differ from one another in some important particulars. The case is as follows:—Isabella Turnbull, aged 69, was admitted into the Royal Infirmary, under the care of Dr Matthews Duncan, in April 1875, and, on examination, the following report was made: "The speculum shows a patulous state of the cervix, it bleeds easily, and the finger discovers the anterior lip slightly projecting. The posterior lip is covered with small hard prominences. The diagnosis was epithelioma in an early stage, and the cervix was cauterized freely with potassa fusa." The patient soon after left the Infirmary. She was re-admitted on 13th January 1876, when she stated that, since she had been in before, she had suffered from a constant buff-coloured fœtid discharge. On vaginal examination the feeling of epithe-

lioma was entirely gone, but two small polypoid excrescences were seen hanging from the cervix, and were removed by the scissors. The operation was followed by slight hæmorrhage, which was easily checked. The discharge was seen to run from the cervical orifice, and a probe, introduced with much difficulty into the uterus, appeared to pass for a long way up. The diagnosis was, that probably there was some form of malignant disease within the cavity of the uterus.

The first of the polypoid growths was three-quarters of an inch in length, about the thickness of a crow-quill, and tapering to a point. The second one was about as long as the first, but considerably broader and flatter. I shall call them No. II. and No. III.

On cutting into No. II., the section was white and somewhat lustrous. In the centre was a cavity of considerable size, filled with blood. Under the microscope the sections were seen to be surrounded with a layer of dermal tissue, composed of papillæ of various sizes, covered by a layer of epithelial cells, resembling those of the cutis vera, and terminating at the surface in a well-marked, tolerably thick, layer of epidermic flattened cells. Beneath these, the cells were first irregularly flattened, then more uniformly round; and from the point where the round shape was assumed, as far nearly as the base of the papillæ, they presented in a well-marked form the prickly appearance so common in cells of skin and epithelioma. These papillæ, and the cells covering them, form a layer of very considerable thickness, surrounding the greater part of the growth. At one point in the circumference the papillæ and cells have undergone a great change; they are no longer to be distinguished as separate parts of the tissue, but are all blended together in a crowd of large round and spindle-shaped cells, which take the carmine very deeply. They are still separated by a distinct outline from the subjacent tissue, which has also undergone a change in character.

The greater part of the interior of the growth is made up of fibrous and connective tissue, containing a few bloodvessels, which, as we near the degenerated spot, become more numerous and larger. Here, also, the normal connective tissue is found to be infiltrated with great numbers of rounded nuclei, which gradually increase in numbers until, under the degenerated spot at the surface, the normal tissue is entirely replaced by them. Even at the most densely crowded part a fine, trabecular fibrous stroma can be made out. No mucous crypts are to be found in any part of the tumour.

This growth—which only deserves the name of polypus, inasmuch as it projected from the surface of the cervix, and was attached to it by a narrow base—appears to be an outgrowth of the mucous membrane covering the external aspect of the cervix. The arrangement of the papillæ and pavement cells at the surface cor-

respond to the normal structure very closely. At one part, however, it is seen undergoing a sarcomatous transformation, a change of undoubtedly malignant character; and we shall see in No. III. a further stage in the development of the disease.

The microscopic appearance of No. III. differs very materially from the last described. It has no external covering of papillæ and pavement epithelium; no vestiges even of such a layer can be found. The free border is formed by a dense layer of the rounded nuclei, similar to those in the malignant part of No. II., supported by a fine trabecula of fibrous tissue. As we pass deeper into the tissue these trabeculæ become more distinct, and can be seen at first as lines separating rows of nucleated cells from one another, and at length as forming a meshwork isolating single cells. These cells are evidently in a state of rapid proliferation. Some contain one, some two or more, large nuclei, which stain deeply in the carmine. Lying among this cellular layer are numerous and large bloodvessels, with walls in many cases thickened and infiltrated with the sarcomatous cells. The great vascularity of the tissue is well seen under a low power.

The structure thus described is undoubtedly sarcomatous in character, and is to be classed as an alveolar sarcoma, rapidly developing a condition of telangeiectasis. In making out the nature of these growths I have had the able assistance of Mr D. J. Hamilton, assistant to Professor Sanders.

These three growths come under neither of the two heads into which polypi of the cervix are usually divided, fibrous and mucous, though No. I. is allied to the latter type. The principal point of interest in it is the size and number of the bloodvessels which its stroma contains, showing that the danger of hæmorrhage, which has been described as occurring sometimes to an alarming extent when such growths have been cut off, has a solid foundation in fact. In a discussion in this Society last year it was pointed out, I believe by Dr Keiller, that the hæmorrhage resulting from removing mucous polypi by the knife was apt to be more severe than that from fibrous polypi.

Nos. II. and III. are invested with special interest by the history of the case, which, when the patient returned a second time for treatment, was a puzzling one. The appearances which gave rise to a diagnosis of epithelioma had disappeared, and the only complaint the patient made was that she had suffered from a constant discharge. The cervix and os uteri presented no appearance of disease excepting these small growths, and though the discharge was evidently coming from the interior of the uterus, the difficulty of introducing a sound into it precluded any further examination being made. Thus the examination of these growths formed a valuable aid to diagnosis by confirming the malignant nature of the disease, and clearing up the doubts which had arisen in consequence of the improvement in the external condition of the cervix

between the time she came first under treatment and her subsequent return nine months later. It is interesting to note, that two growths, springing side by side at the same time, and from the same part of the cervix, should present so great a difference in microscopical appearance, and should represent such different stages of the disease; and I think we may draw from it the inference, that if more than one tumour grow from the cervix, it is well to examine all before determining on the nature of the malady.

Article IV.—*The Medical Society of Chile.* By John Boyd, M.D., Slamannan.

In Chile, as in every other portion of the civilized world, the tendency of the scattered molecules of the medical profession to congregate and combine themselves in friendly agglomeration, became strikingly manifested by the formation of the Medical Society of Chile, in Santiago, on the 1st of August 1869. This institution appears to have met with a large measure of success; and in the third year of its existence it was resolved to establish a monthly journal of its own, entitled *La Revista Medica de Chile*, the first number of which appeared in July 1872. This periodical, comprising four sections—(1), memorias or original communications; (2), clinical reviews; (3), foreign reviews or bibliography; (4), boletins or local intelligence—displays a good deal of spirit, and indicates that the conductors are well up to the mark of the present epoch of medical science. Encouraged by the prosperity of the society and its organ, the members took occasion, on the sixth anniversary of its foundation, to make a solemn demonstration in honour of its distinguished actual president, Dr R. A. Phillipi. Accordingly, seventy associates met, at what is termed "un Té," in the Hotel Santiago, the president in the chair; and, as in the case of every creditable and advantageous affair, the inevitable Scotchman put in an appearance in the person of the vice-president, Dr F. Middleton. The account of this banquet reads less like that of a tea-party than a report of a certain annual professional reunion in Glasgow; and, in reply to the toast of the evening, I fancied I heard a voice from Falkirk neither still nor small. Judging from the number and nature of the toasts, it would seem that the cup that cheers but not inebriates had been supplemented by the excellent *vino del pais*, which must have exercised its usual vocal influence, as, after a list of "los brindis," it is recorded that speech was likewise taken by Dr David Salamanca, Dr Isaac Ugarte Gutierrez, Dr Eulojio Carrasco, Dr Agusto Orrego Luco, Dr Ramon Ortez, Dr Tomas R. Torres, and the Señores Máximo Cienfúegos, Manuel A. Cerda, Federico Arnado, Enrique Silva Yavár, Demetrio Murda, and Diego Bahamondes.

One of the prominent features of this association is the systematic appointment of some subject connected with medicine and the allied sciences for competition among its members. The topic of last year's concourse was the medical topography of Chile, and the prize was awarded to an able and elaborate treatise by Don Wenceslao Diaz, Profesor de Clinica Interna in the University, which appeared in the last January and February numbers of the Revista. This article seems to have formed the groundwork of the "Nota" of the Society published in No. 2, vol. iv. of that periodical, in reply to a communication from M. Edouard Sèves, Belgian Consul-general, on the Royal Academy of Medicine of Belgium, etc. In the following version of the said "nota," fidelity to the Spanish original is much more studied than elegance of diction.

I. *Physical Conditions and Climate of Chile.*—In order to comprehend the sanitary state of Chile, we require to cast a rapid glance at the physical and climatic conditions of the country. Chile consists of a narrow band of territory containing on an average only from 150 to 180 kilometres of breadth, extending from the 24° of S. latitude to Cape Horne, situated at 55° 48′. It is washed at the coast by the Pacific Ocean; the barrier of the Andes separates it from the Argentine Republic, leaving a small number of difficult passes; so that, even at the present day, no carriage road exists between the two republics, and communication is interrupted in the greater part of this long strait during all the winter months, by reason of the passes being blocked up with snow. From this circumstance it follows that the introduction of a contagious malady, the cholera for example, is almost impossible by way of land.

The elevated cordillera presents a very different aspect in different latitudes. It may be said that in general it lessens in elevation and breadth from north to south, but the most elevated peaks remain everywhere covered with eternal snows. The desert of Atacama is an extensive table-land which rises to 3000 metres, where no chain exists, nor longitudinal nor transverse valleys or watershed. But southwards, in the province of Coquimbo, there are also to be found rather wide elevated tracts of smaller extent, from space to space, known by the name of *patos*, and deep valleys termed *cajones* in the country, and which more or less correspond to those denominated *cañones* in California.

It is a common error to suppose that all the chain of the Chilian Andes is volcanic, and that all the elevated peaks are volcanoes; however, it is certain that a large number of these are extinct volcanoes, and some few are still active. Their eruptions, nevertheless, are comparatively seldom disturbing, from the craters being situated in the centre of the cordilleras, far from the cultivated and inhabited plains.

Another chain of mountains is formed by the coast, leaving only from space to space small and insignificant plains between its base and the waves of the ocean; this is the coast cordillera, which

sometimes presents level stretches, the elevation of which seldom exceeds 1000 metres, frequently much less. In the northern part of the republic, this mountain-range and the central one of the Andes are joined by frequent transverse chains of hills; hence it is that the greater part of the territory is mountainous, only a small portion being level; however, from the rising ground of the Chacabuco, situated to the north of Santiago, and memorable from the battle which San Martin gained there over the Spaniards on the 12th of February 1817, there extends a wide valley of immense length between the two cordilleras reaching to Puerto Montt, and continuing even farther, descending to the level of the sea at the Straits of Magellan; at the same time the coast-range divides itself into a great number of islands, the largest of which is Chiloe.

The rivers of Chile all run from east to west, directed perpendicularly to the littoral, traversing the wider or narrower valleys of the coast, possessing consequently no great length. Those of the north present a much greater acclivity than those of the south, which alone are navigable. Not to mention the small lakes scattered in the high cordillera of the Andes, we observe on the coast a number of salt lagoons which communicate with the sea, among which deserve to be mentioned that of Vichuquen and that of Bucalemu. In the provinces of Valdura and Llanquihue we find at the foot of the Andes a series of large lakes which, from their situation, magnitude, and the varied character of their surroundings, might compare with the lakes of Geneva, Constanza, Lucerne, Como, etc., which beautify the districts situated at the foot of the Alps. In no parts of Chile are marshes of any extent to be found; the country is therefore entirely devoid of this cause of miasm and endemic maladies.

The temperature of Chile is in general, as in all the southern hemisphere, more uniform and less elevated than in the same latitudes in the north. The winters are mild, so that in no part of the coasts, except in the Magellan regions, are frost or snow-storms to be found; at the same time, the summers are comparatively cool. The following figures will give an approximative idea of the temperature of Chile:—

	Latitude.	Elevation above the Sea.	Medium Annual Temperature.	Medium Summer Temperature.	Medium Winter Temperature.
Copiapo	27° 23′	336m.	14°6 C.	18°5 C.	11°37 C.
Valparaiso	33° 2′	0	14,1	16,3	10,6
Santiago	35° 27′	550m.	12,75	18,4	7,56
Talca	35° 26′	105m.	15,75	22,4	9
Valdivia	39° 49′	0	11,0	16,0	8,1
Puerto Montt	41° 30′	0	11,75	15,7	7,7

In the localities situated at the foot of the Andes the nights are very cold, because after sunset a current of cold air descends from

the snow-clad summits. Clouds, mists, and rains are very unequally distributed in the Chilian territory. While the north is a horrid desert, in consequence of the almost total absence of water, Valdivia and Chiloe may be classed among the wettest places on the globe. In the desert of Atacama sometimes fifty years pass without a single shower. In Copiapo it rains once a year;[1] in Coquimbo three or four times; in Santiago the average number of wet days is twenty-one; in Valparaiso twenty-five; in Valdivia 150; and in Magellan 175 per annum. The quantity of water that falls does not correspond to the rainy days, as seen below:—

		Millimetres of Rainfall on Average of Year.
Serena,	29° 54′	172
Santiago,	33° 27′	419
Talca,	35° 26′	547
Concepcion,	36° 49′	1364
Valdivia,	39° 49′	2859
Puerto Montt,	41° 30′	2676
Punta Arenas,	53° 10′	555

In the northern provinces it rains only during the winter; in proportion as we advance southwards we see that the other seasons have also their rainfalls, although in these also are they most frequent in winter.

Hail storms are unknown in Chile, or, at most, there falls a fine granular hail, never large pieces sufficient to shake or destroy the crops, such as are so frequently seen in the Argentine Republic. Even tempests accompanied by electric phenomena are rarely observed, and the fall of lightning flashes are seldom spoken of; hence lightning conductors are useless and unknown in Chile.

The great regularity of the Chilian climate arises undoubtedly from the predominating winds. We remark, that the elevated cordillera of the Andes opposes an invincible obstacle to the east winds, which may be said to be unknown with us. The equatorial counter-current, which should manifest itself as a wind from the N.E., encountering the same barrier, changes its direction from north to south, and blowing principally during the winter months, carrying the rain with the vapours of the Pacific Ocean, which it has traversed. However, during the greater part of the year the south wind blows, meeting, as it proceeds, warmer and drier regions, brings with it a serene sky, depressing the temperature at the same time. This circumstance, along with the current termed that of Humboldt, is undoubtedly the cause of the comparatively fresh summers of Chile. Great winds are rare, especially in the interior of the country; and if tempests are observed sometimes on our coasts during the winter, there is no

[1] A friend of mine, after a four years' sojourn near that quarter, brought back his umbrella as fresh as he took it away, having had only occasion once to use it in all that time.

tradition of the occurrence of the hurricanes, cyclones, etc., which devastate so many other parts of America.

It follows from this short exposition of the climatic and hygienic condition of Chile that few portions of the globe are more favoured under this point of view. It is, in fact, a very healthy country, exempted from endemic maladies, and but little exposed to the dangers of receiving many contagious epidemics, such as yellow fever and cholera. Some aver that, *per contra*, Chile is very liable to the terrible influence of earthquakes; but, conceding that earthquakes are sufficiently frequent, especially in the north of the republic, we must confess that very seldom are disastrous effects produced by these, and that they have little influence on the sanitary state of the population.

It does not enter into the design of this sketch to speak of the mineralogy, the flora, and the fauna of Chile; and I will confine myself to some remarks that are in relation to the sanitary state of the inhabitants of that country. It is well known that in the highly-elevated regions of Bolivia, of Peru, etc., the travellers, and sometimes also the natives, are attacked by a malady, or rather a peculiar morbid condition, called *sorocho* by some, *puna* by others, which has been attributed by several persons to mineral emanations, but which probably arises from the rapid diminution of the pressure of the atmosphere accompanying sudden ascent to great elevations. In Chile this *sorocho* is very seldom mentioned.

The naturalist who studies the zoology of Chile is astonished to see the fauna so poor in animals of all classes; however, along with this there is also observed a total absence of all animals either venomous or prejudicial to health.

No venomous serpents exist here, nor does one ever hear of accidents occasioned by the bite of a scorpion, although this little animal is common enough.

The only animal truly poisonous is a small spider, the *Latrodectes formidabilis* of naturalists, the sting of which gives rise at times to serious accidents; the bite of the *Arañas del Sol* (Galeodes) is likewise to be feared. The plagues of wasps, ants, centipedes, and mosquitoes, that afflict the tropical regions, are altogether unknown; and even the *Zancudos* (Culex) are much less numerous in Chile than elsewhere, and troublesome only in a few localities.

Mineral Waters of Chile.—Chile possesses a great number of mineral and thermal waters, but only a small proportion of these has been utilized for the benefit of the sick. Almost all of them are found at the foot of the Andes or on its declivity. The most celebrated and most frequented are the following:—

1. *The Baths of Chillan*, situated at 1864 metres above the sea-level, in a volcanic region, little distant from the perpetual snows. Of its various affluents the most important is the sulphurous, the temperature of which reaches to 58°. From their

high elevation these are only accessible during the summer months, and the accommodation for patients is middling. In other respects the access is sufficiently easy.

2. *The Baths of Cauguénes*, on the banks of the river Cachapol, and at 677 metres above the level of the sea. They are alkaline waters, varying in their temperature in the different springs from 35° to 47°. The establishment can vie in every aspect with the most celebrated in Europe.

3. *The Baths of Apoquindo*, a few leagues to the east of Santiago, at a height of 799 metres. They are equally alkaline, although less concentrated, and the different streams have a temperature from 17° to 28°. At these baths may also be found every accommodation for the infirm and the other visitors.

Equal convenience may be found at the *baths of Colina*, situated at 10 leagues to the N.E. of Santiago, at an elevation of 909 metres. The temperature of the water is from 25° to 32°. This contains a small quantity of alkaline principles in solution; they are nevertheless very efficacious in certain maladies.

In all the other baths, which, from their chemical composition, might be even preferable, there has not been the slightest trouble taken to gain access to them easily, or to supply the means of lodging or living there with any comfort. It is necessary to bring all sorts of provisions, beds, etc., with one—to erect a hut or cabin, and to bathe in the open air; hence it arises that, with few exceptions, only the inhabitants in the vicinity of these baths make any use of them, or have any experience of their medical virtues.

II. *Endemic and Epidemic Diseases.*—One of the maladies that invades this land in an almost fatal manner is the epidemic small-pox. Within these few years alone there have occurred two epidemics of the same malady, which traversed the country from north to south.

The last time, above all, it became very confluent and hæmorrhagic, from which the mortality attained sometimes to 50 per cent. during a short period. It is to be observed that such ravages occur almost exclusively among the more indigent classes,[1] originating in the absence of wholesome habits, and more especially in the non-vaccinated individuals. With us, vaccination is not compulsory.

In the interval between one epidemic and the other, there are always to be seen some cases of mild variola in our cities.

Another endemic affection, becoming epidemic from time to time, is the *chabalengo*, improperly termed the typhoid fever of Chile, which corresponds exactly to the typhus fever of Ireland, as described by Graves and Stokes of Dublin. In general, this is a formidable malady in itself, and much more so when epidemic.

[1] The reader of Castilian will find a very graphic picture of the social conditions and habits of the humbler ranks in Chile, in that most interesting though diffuse specimen of Hispano-American literature, *Los Secretos del Pueblo*, by Martin Palma.

This affection predominates in the necessitous and vicious classes in the epidemic epoch. When non-epidemic, it attacks the natives of the country periodically, but under a benign form in the generality of the cases. During the year 1873, we have had an epidemic of *erysipelas faciei*, which made a great number of victims in Santiago, from taking the hæmorrhagic or gangrenous form. In 1868 and 1869 there was an epidemic of puerperal metro-peritonitis, reduced to a small number of cases in civil practice.

The gravity of this malady depended, in general, on the state of anæmia in which the inflammatory affection found the patients.

Hooping-cough prevailed during the whole of 1873 among the children. Measles and scarlatina usually present mild epidemics during the spring season. We have had the aphthous fever, or epizootia, among the animals, imported during the year of 1871 from the neighbouring Argentine Republic by the herds imported from it to ours.

Under the influence of various pathogenic causes, the following affections are endemic:—The tonsillary anginas and the milder pharyngeal; bronchitis and pneumonia; dysentery—the cholera mistero (lapidis de calambres); acute rheumatism; and the neuralgias.

The above-mentioned recognise as the primary productive agents abrupt atmospheric changes, excesses of all kinds, which predispose by debilitating the organism, and the misery and neglect of the inferior ranks.

Rheumatism and syphilis are the most frequent originating causes of organic heart disease in this country. The former is very untractable. Syphilis is sometimes so from want of appropriate treatment.

In consequence of bad hygienic regimen, affections of the liver (hepatic abscess) are common. Dyspepsia and diarrhœa are also so in all ages, from similar causes; likewise the lumbrici in children. Pustula maligna appears from time to time in country places under local pathological conditions (contact with the flesh of putrefied animals).

The two forms of pulmonary phthisis (P. caseosa and P. gravelosa) are frequent and fatal, especially in the localities where the supply of the reparatory aliments is difficult. In exchange, till now, we have never had epidemic cholera among us, nor yellow fever, which on repeated occasions have decimated our neighbours in Peru and La Plata. No intermittent fevers exist in our natal soil, and the rarity is extreme that one or other case of dothinteria becomes visible.

ARTICLE V.—*Sclerosis in Scattered Patches.* By Prof. CHARCOT, La Salpêtrière, Paris. Translated by THOMAS OLIVER, M.B., Preston, with M. Charcot's permission.

(*Continued from page* 56.)

III.—You now know one of the most genuine and important symptoms of sclerosis in generalized patches. A deeper and more circumstantial study of the case which we have before us will permit us to gather not less valuable indications. We shall discover in our patient an entire group of symptoms, which I have proposed to call *cephalic*, as opposed to the spinal symptoms. This group comprehends certain disturbances of sight, of speech, and of intelligence.

(*A.*) Let us, in the first place, consider the disturbances of sight. They are diplopia, amblyopia, and especially nystagmus.

(*a.*) *Diplopia*, just as that found in locomotor ataxy, is a phenomenon of incipience, in general altogether transitory, but which deserves to be noted in passing.

(*b.*) *Amblyopia* is, on the contrary, a lasting, and, besides, a more frequent symptom of cerebro-spinal sclerosis in patches. I believe I can affirm that very rarely (in opposition to what is observed in posterior sclerosis) it ends in complete blindness. That is a peculiarity worthy of remark, especially if we consider that, after death, sclerous patches, occupying the whole thickness of the nervous cord, have been found upon the optic nerves in cases where, during life, there had been observed a simple weakening of the sight. This apparent discrepancy between the symptom and the lesion constitutes one of the most powerful arguments that one can appeal to, in order to show that the functional continuity of nerve-tubes is not absolutely interrupted, even though the latter, in their passage through the sclerous patches, are deprived of their sheath of myeline and reduced to axis-cylinders.

Ophthalmoscopic examination, generally rendered very difficult in consequence of the existence of nystagmus, compels us to recognise in such a case sometimes an almost complete integrity of the papilla of the optic nerve, even at the very time that the amblyopia is still most marked, sometimes a partial lesion, and, in fine, sometimes, in rare cases, where blindness is complete, a total atrophy (a pearly white coloration, extreme tenuity of the vessels, etc.), with or without a sinking of the papilla.

Everything is limited in Miss V. to a rather marked amblyopia of both eyes. Ophthalmoscopic examination has not enabled us to discover here any very well-determined lesion. A fact that deserves to be particularly noticed is, that, in her, appearances of flashes and sparks preceded the impairment of vision. I have

noticed the same phenomenon in several other cases of amblyopia, combined with multilocular sclerosis.

(*c.*) *Nystagmus*[1] is a symptom of great diagnostic importance, since it is observed in nearly half of the cases. So far as I know, we meet with it only very exceptionally in ataxy. You may discover that it exists in Miss V. in a very decided manner. There is question, as you see, of little shocks, which cause the two eyeballs to oscillate simultaneously from right to left, or inversely. There are cases in which the nystagmus is wanting so long as the look remains vague, without precise direction; but it manifests itself suddenly, in a manner more or less marked, so soon as the patients are requested to fix their attention upon an object.

(*B.*) A symptom more frequent still than nystagmus (nearly almost constant in multilocular cerebro-spinal sclerosis, since we find it mentioned twenty times in twenty-three cases which we have analyzed), is a *peculiar difficulty in articulation,* which you may study in our patient in its type of complete development.

The speech is slow, drawling, and now and again almost unintelligible. It seems as if the tongue had become "too thick," and the utterance recalls that of people somewhat inebriated. A more attentive study enables us to discover that the words are as if scanned: there is a pause between each syllable, and the latter are pronounced slowly. There is some hesitation in the articulation of the words; but, properly speaking, nothing resembling stammering. Certain consonants, *l*, *p*, and *g*, are, in particular, badly pronounced.

There exists in Miss V., as you may ascertain for yourselves, a certain slowness in the movements of the tongue. You recognise that, even when drawn out of the mouth, this latter is agitated by very obvious tremblings. We should not suppose that that is a constant phenomenon. Several times I have noticed that the articulation might be embarrassed in a great degree without the tongue presenting the slightest trace of trembling. Besides, at least according to observations, the tongue always preserves its normal volume, and never have I seen it wrinkled on its surface, as is observed in certain cases of labio-glosso-laryngeal paralysis, with atrophy of the lingual muscles.

At first hardly appreciable, the difficulty in articulation becomes progressively worse during the course of the disease, so far as sometimes to render their conversation almost unintelligible. There are cases in which we see it become worse suddenly, as if by fits, and become temporarily improved afterwards.

The difficulty in articulation which we observe in cerebro-spinal sclerosis resembles in many points the corresponding symptom of progressive general paralysis. I believe that even, in many cases, were it not for the help furnished by the consideration of concomitant phenomena, their distinction would be almost im-

[1] Νυσταγμος, nodding. Nystagmus is a twitching of the eyeballs.—T. O.

possible. Add to this, that the similarity may be rendered closer still by this circumstance, that, in multilocular sclerosis, as well as in general paralysis, the emission of words is sometimes preceded, as you can see in our patient, by a slight contraction (as it were convulsive) of the lips.

Whatever the case may be, this difficulty in the articulation of words to which I call your attention is a very important symptom of multilocular sclerosis. It may powerfully contribute to the determination of a diagnosis in cases (exceptional too) in which the trembling of the head and upper limbs is wanting.

To this symptom may be added in succession, especially in the advanced periods of the disease, certain disturbances of deglutition, of the circulation, and even of respiration. These are symptoms of *progressive bulbar paralysis*, which ought to excite special attention, because, in becoming worse in a rapid manner, they have sometimes suddenly determined, almost unexpectedly, a fatal termination. In proportion to the interest which attaches to them from a prognostic point of view, they will be the object of special consideration.

(*C.*) In about three-fourths of the cases, *vertigo* is one of the phenomena which mark the commencement of multilocular sclerosis of the nerve-centres. As far as I can judge from the information given me by the patients whom I have interrogated upon the subject, it seems in general to be a kind of gyrating vertigo. It seems that all objects turn with great rapidity, and that the patient himself is subjected to a circulatory movement, and, threatened with loss of equilibrium, he lays hold of surrounding objects. Most frequently this vertigo returns at short intervals. Sometimes, nevertheless, it persists, almost without interruption, during a certain period, superadded to the trembling and to the paralytic state of the limbs. It contributes sometimes very essentially to render standing or walking tottering, and almost impossible. We must not confound stumbling with the uncertainty of gait which is connected with diplopia; this last ceases to exist as soon as the patient keeps one of his eyes closed.

The vertigo of which we speak is a symptom so much the more interesting as it belongs neither to locomotor ataxy nor to paralysis agitans; consequently, it may be of some aid in the diagnosis.

(*D.*) Most of the patients affected with multilocular sclerosis whom I have had occasion to observe have presented at a certain period of the disease a really peculiar *facies*. The glance is vague, uncertain; the lips are drooping, half open; the features are expressive of hebetude, sometimes even of stupor. To this prevailing facial expression corresponds almost always a mental state which deserves to be pointed out. There is a marked weakening of the memory; conceptions are slow; the intellectual and sensitive faculties are blunted in their entirety. What seems to prevail in these patients is a kind of almost stupid indifference to every-

thing. It is not rare to see them laugh idiotically without any cause; and sometimes, on the contrary, melt into tears, without any more assignable motive. It is not rare either to see, in the midst of this state of mental depression, psychical disturbances exhibit themselves which put on one or other of the classic forms of mental alienation.

One of the patients of Valentiner, habitually melancholic, was from time to time affected with *delirium exaggerans* (délire des grandeurs). A man, whose history has been quite recently reported by Dr Leube, believed that he was destined to become king or emperor; he said that he possessed in great numbers oxen, horses, beautiful houses, etc. He was soon, he said, to marry a countess, etc.

Miss V. has been seized some weeks ago with a true attack of lypemania. She had hallucinations of sight and hearing; she saw dreadful people, and heard voices which threatened her "with the guillotine." She was convinced that we wished to poison her. During a period of almost twenty days she has refused every kind of nourishment, and we have been forced to nourish her during all this time by the aid of the œsophageal tube. To-day these accidents have almost completely disappeared. Yet the voices are still heard from time to time. You see that the patient during our examination is seized with convulsive laughter, which it is impossible for her to moderate, and to which tears will soon succeed.

IV.—To complete the description of the case which I have just presented to you as a type of *multilocular sclerosis* of the nerve-centres, it remains for me to direct your attention to the state of the lower limbs.

You may have observed that Miss V. cannot rise from her chair, stand upright, or attempt to walk a few steps, if she is not strongly supported by two assistants. It is easy to recognise that the cause of this inability to move is chiefly the rigidity, almost tetanic, which has seized the lower limbs, and which, already very marked when the patient is lying or seated, is again raised to the highest point when she attempts to rise or walk.

This contraction of the lower limbs, which is permanent at present, has only manifested itself quite recently in Miss V. It is, in fact, a symptom of the advanced periods of the disease. Always, in the development of the morbid process, it is preceded for a considerable period by a *paretic state*, presenting some peculiar traits, which I shall now attempt to explain to you.

Concerning this particular point, the clinical history of Miss V. has been crossed by certain incidents which, without being absolutely exceptional, are not, however, the rule. Accordingly, I must give it up for a moment, reserving to myself the right to resume it presently. In the description which follows I shall refer to the details recorded in a certain number of observations

which I have collected, and in which the paretic period has been developed according to normal conditions.

Paresis of the Limbs.—What we have to discuss here is a more or less marked enfeebling of the motor powers of the limbs, which shows itself frequently from the commencement of the disease, and to which there is generally added no marked disturbance of the sensibility.

In general, one of the lower limbs is primarily affected, and quite alone at first. It seems heavy and difficult to move. The foot turns awry in walking at the least obstacle, or the entire limb bends suddenly under the weight of the body. The other limb is seized in its turn, sooner or later. Nevertheless, as the paresis progresses generally with extreme slowness, it allows the patient still for a long time to walk (well or ill), and to attend to his occupation; but a day comes at last when, by the aggravation of the motor paralysis, he may be confined to bed. The upper limbs are invaded also, either simultaneously or one after the other, commonly at a time long subsequent to the commencement. Often at the onset there are remissions in this symptom. Thus, it is not rare to see the lower limbs weakened, and then resume for a time their former energy. These remissions may even be reproduced sometimes at two or three successive epochs. I point out this peculiarity to your attention because it is not found, certainly to the same degree, in other chronic diseases of the spinal cord.

I must return for a moment (in order to emphasize it) to the absence, already noted, of disturbances of the sensibility. The patients sometimes complain greatly of formication and numbness of the enfeebled limbs; but these symptoms are nearly always transitory, and but little defined. Besides, it is easy to establish that the cutaneous sensibility is, in the limbs affected, almost always preserved in every form of it. The pains in the waist, *the fulminating crises*, which play so predominant a part in the first periods of progressive locomotor ataxy, are here absent. The same remark may be made in reference to the want of knowledge of the position of the parts, which belongs equally to ataxy. It does not exist in regular multilocular sclerosis. Patients seized with this latter affection can, with the eyes shut, determine with precision the attitude which their limbs have been made to assume. The closing of the eyes has not, either, any marked influence upon the upright position, nor upon their gait. The latter is uncertain, embarrassed, and titubant in the compound ratio of the muscular weakness and trembling, which sooner or later do not fail to be superadded; the feet, held separated to enlarge the base of support drag painfully along the ground, from which they have great difficulty in freeing themselves. When the stumbling is very marked, the patients are threatened with falling at every moment, and they, in fact, allow themselves to fall very frequently. The lower limbs are not thrown forwards without rhythm, and convulsively,

as occurs usually in sclerosis of the posterior columns. The sphincters take part only very rarely in the weakening of the muscles of the limbs—a circumstance which establishes a contrast with many spinal affections in which we see, on the contrary, very early disturbances of the bladder and rectum superadded to the other symptoms. Finally, in order to complete the description, we must bring into prominent notice the habitual absence of trophic muscular disturbances in the paraplegia combined with multilocular sclerosis. The weakened muscles preserve for a long time, nearly up to the last term, their prominence and their consistency. Submitted to faradic examination, they present at no period traces of a notable weakening of the electric contractility.

Intermixture of Unusual Symptoms.—I have just mentioned by the way a certain number of symptoms which I have taken care to subordinate, because they do not belong to the regular type of the disease. It is important to impress upon you now, by way of corrective, that these symptoms are nevertheless mixed up in certain cases with the ordinary phenomena of multilocular sclerosis, and are even exhibited sometimes to such a degree that mistake would become almost inevitable to an observer not forewarned. In regard to this point the case of Miss V. may furnish us with valuable information. I note for this purpose some details which were recorded on the 24th of March 1867, that is to say, more than three years ago. At this period, when the paresis and trembling were besides already marked enough in the lower limbs for the patient to be incapable of walking otherwise than supported by two assistants, we have observed what follows:—During walking the feet are a little projected, "as in the case of ataxics." When the eyes are closed there is "an exaggeration of the stumbling and loss of equilibrium, and falling would take place if the patient were not strongly supported." In the lower limbs "tactile sensibility has diminished in a notable manner." The patient cannot tell with her eyes shut the attitude which has been impressed upon her limbs. From time to time she feels in them violent shocks of "flashing pains." We discover, in fine, the existence of pain in the waist.

You have just recognised in this enumeration almost the entire series of the phenomena which, clinically, serve to characterize progressive locomotor ataxy. At present some of them are still found in our patient, but in general, however, notably attenuated or relegated to a position of secondary importance. Does this mean that even at the time in which they seemed to predominate they were of a nature seriously to embarrass the diagnosis? Certainly not, for I am convinced that in all cases of the same kind you would avoid being deceived by taking into account the following observations:—

The fact even that paresis of the lower limbs, which does not exist in posterior sclerosis, or which at least only shows itself in the advanced phases, would be found mixed up with *ataxic symp-*

toms or specially precede them, would, above all, place you on the right road. Besides, you certainly would have to register the coexistence of some of the symptoms which belong to multilocular induration—that is to say, the *embarrassment of speech, vertigos, nystagmus*, etc. It is important, too, to understand clearly the reason which causes ataxic symptoms to manifest themselves sometimes in the course of multilocular induration, as I observed above. In my opinion, there is no question there of a combination of the elementary forms of two diseases—progressive locomotor ataxy and cerebro-spinal sclerosis in patches. So far as I am concerned, I have never met with, in the dead body, the coexistence of multilocular fatty induration and posterior fasciculated sclerosis, and, without denying that this association may exist, I believe it at least to be infinitely rare. It is common enough, on the contrary, that the sclerous patches, which, as a rule, are seated principally in the antero-lateral columns, go beyond the postero-lateral furrows, and encroach upon the posterior columns. Sometimes even I have seen them become confluent, and occupy a large part of the thickness of these columns, in the whole extent of one of the regions of the spinal cord, of the lumbar region for example. Now, in all the cases of the last kind, ataxic symptoms had manifested themselves during life in different degrees. I do not doubt that a similar disposition must give an account one day of the flashing pains, of the motor incoordination, and, in a word, of all the phenomena of the same order which are found recorded in the observation of Miss V.

Unusual symptoms of another kind may yet be added to the regular symptoms of multilocular sclerosis. I have seen, in several cases, otherwise perfectly characteristic of this affection, an atrophy of certain muscles or groups of muscles supervene, recalling, as well by its situation as by its mode of invasion, muscular atrophy of a progressive nature. It has been given me twice to recognise the anatomical reasons of this new complication: in these two cases the irritative process, of which the sclerous patches are the centre, had been communicated, in certain regions of the spinal cord, to the nerve-cells of the anterior cornua of the gray substance, and these cells had in consequence undergone deep-seated disorganization. Now, according to the researches which I have explained to you, it is hardly doubtful that the progressive amyotrophy, whether it is protopathic, or, on the contrary, consequent, arises most frequently from an irritative lesion of the large cells called motor.

Permanent Contraction of the Limbs.—Spinal Epilepsy.—It is now time to return to the contraction of the lower limbs, which in Miss V. constitutes at present a permanent phenomenon, and which you can study in its most perfect type. That is a habitual symptom of the advanced periods of multilocular sclerosis; it does not follow paresis at the first onset and without transition. At a certain period of the paretic stage, we see kinds of fits produced, either spontaneously or under the influence of certain excitants,

during which the lower limbs are stiffened while extended, at the same time as they glue themselves, so to speak, to one another. The fits, which last some hours and sometimes days, are at first separated by intervals more or less long. Later on they occur at shorter intervals, and at a given moment permanent contraction is found definitively established. When things are at this point, this is what we observe: the lower limbs, just as it occurred during the fits, are in a state of extension; the thighs are spread over the pelvis, the legs over the thighs; the feet present the attitude of varo-equinal club-foot; besides, the knees are so closely pressed against each other that you cannot sever them without great effort. The two lower limbs are very generally affected simultaneously and to the same degree. Their rigidity is in some cases so marked that in raising one of them, while the patient is in bed, we raise at the same time the lower half of the body all in a piece. It is only in rare cases, and only in the later stages of the disease, that flexion of the thigh and of the leg predominate over extension. The permanent contraction may seize upon—the fact is besides rather exceptional—the upper limbs, which also are then, in general, in forced extension, and remain thus closely applied to each side of the trunk. What we speak of is a spasm which seizes simultaneously and almost to the same degree the antagonistic muscles, for it is almost as difficult when the limbs are bent to stretch them as to bend them when they are stretched.

When we take into our hands the extremity of one of the feet and stretch it a little abruptly over the leg, there is produced almost immediately, through the whole extent of the corresponding member, a kind of convulsive trembling, which recalls the tremor produced by strychnine poisoning. This tremor, which we must take care not to confound with the peculiar trembling which supervenes on the occasion of movements resulting from volition, does not always remain limited to the limb, the foot of which has been extended; it propagates itself sometimes to the opposite limb; the agitation may then sometimes be so intense as to be communicated to the whole body, and even to the bed on which the patient lies. In certain subjects it persists for several minutes, or even for a much longer period, after the removal of the irritation which has brought it into play. We can make it cease suddenly, as M. Brown-Séquard has shown, and as I have several times observed since, by taking a good hold of one of the great toes of the patient and bending it suddenly and with force. Immediately after this manipulation, the tetanic rigidity and the convulsive tremor cease in the two limbs, which become for the moment "perfectly supple and pliable, as they are after death, before the appearance of cadaveric rigidity." Faradization and pinching of the skin of the leg, more rarely bending of the lower limb, impression of cold and tickling of the sole of the foot, may bring on the convulsive tremor. The latter is also developed sometimes spontaneously, at least in appearance, sometimes under the influence of the efforts which the

patient makes to vomit, to go to stool, to sit erect in his bed, or to get down from it and put his foot on the ground. Walking, which permanent rigidity does not always absolutely prevent (the patients then step on tip-toe, without the heel touching the ground), also evokes the convulsive tremor. Finally, this trembling may also be produced temporarily, simultaneously with rigidity, even during the course of the paretic period, under the influence of one or several of the modes of excitation which we have just reviewed.

The phenomenon, of which I have just sketched the principal characters, is no other than the *spinal epilepsy* described by M. Brown-Séquard. We notice it in Miss V. in the form which I have proposed to call *tonic*. This form, which is that most commonly observed in multilocular gray induration, may be contrasted with the *choreic* form, which, on the contrary, predominates in progressive locomotor ataxy, and in some other spinal affections.

The permanent contraction of the limbs and spinal epilepsy need not detain us longer. These symptoms, in fact, do not belong exclusively (far from it) to multilocular sclerosis of the nerve-centres. They will be therefore studied apart, in a general manner, and in their relation to the various affections of the spinal cord in which they may manifest themselves.

Article VI.—*Cases from Practice.* By Dr Maclaren, Lasswade.

The occasional development of constitutional diseases during the course of other ailments is a fact well known to physicians. Gout, rheumatism, syphilis, ague, phthisis, or cancer, may be evoked in this manner, but no general law has yet been deduced explaining precisely the point of union betwixt the two conditions; nor why, where both may be assumed to exist, there is no morbid evolution of the constitutional state. As yet, the only *rationale* one can offer of the mode in which simple diseases produce these results varies according to the different circumstances. In gout, rheumatism, and syphilis, the depressing effect of a local disease may so alter the relation betwixt the morbid and healthy elements of the blood, that the patient is temporarily in the same position as if there were an excessive accumulation of the specific poison. Again, any cause of exhaustion in persons previously subject to ague may, so to speak, remind the system of the impoverished state of the blood in that disease, and recall the nervous phenomena peculiar to it. Inflammatory fever is apt to call into active existence the seeds of tuberculosis, which, without that stimulus, might have lain dormant in the system. The low forms of health which are known to follow anxiety and sorrow, or accompany the perturbations incidental to the climacteric state in women, are sometimes observed to precede cancerous formations.

Surgery is not wanting in illustrative examples of this sequence

of morbid action. Here, in injuries and operations, the element of shock may be looked upon as the physical counterpart of those mental states, usually of a depressing nature, which prove such potent antecedent factors of the constitutional malady. The causes, too, are as far removed as can possibly be imagined in their nature from the ailments which they sometimes discover, so that there can be no suspicion of any hidden relation between the two conditions to make the study of this subject any more difficult or obscure. Sir James Paget has written of this inquiry, in relation to the powers which fevers have in developing constitutional disease, that it is one "of the highest interest, and full of promise of utility, to one who will carefully study it." Already a knowledge of the fact that such a connexion exists, is of the greatest practical importance, and as it is most likely that a further knowledge is only to be attained by a close study of cases which have been carefully observed, I am induced to record two interesting examples which have recently occurred in my surgical practice.

Case I.—A gentleman, æt. 59, early in November 1875, fell, spraining his right ankle and bruising his right wrist. At first, he felt so little inconvenience from the accident, that he was able for the next two days to go into Edinburgh by train, transact his usual business, and on each occasion walk a considerable distance. On the third day, the pain and swelling at the ankle compelled him to remain at home. Then, when first seen, the usual signs and symptoms of sprain and bruise were found, but, at the same time, there was noticed a slight want of power in the muscles of the right side of the face, and indistinctness in articulation. The patient was quite conscious, gave a lucid account of the accident, and felt no pain anywhere except in the joints. There were no marks of any injury on the head. The tongue was as usual large and creamy. Pulse 84, more rapid than natural, and of high tension. Urine scanty, but without albumen. On the fourth day, the loss of muscular power on the right side of face and right arm was complete, and nearly so in the right leg. Sensibility unimpaired. There were no head symptoms. From this date the muscular contractility improved daily, and on the tenth day was very nearly natural. On the thirteenth day, the patient was seized with an attack of acute gout in the right toe and ankle, which lasted ten days, when the phalanges and wrist of the corresponding hand underwent a similar process for about the same length of time.

Two months after the accident there only remained a slight degree of general weakness on the right side and stiffness of the fingers, but these did not prevent the patient resuming his professional duties, nor his ordinary amount of walking exercise.

Case II.—Mr S., æt. 53, came to me in December 1875, complaining of a medullary sarcomatous tumour of the testicle, which had been growing for nearly a year. He is a pale, dyspeptic man, with a mitral murmur, the result of the only attack of acute rheumatism he had, when he was 21 years of age. In January

1876, under chloroform, I removed the affected gland, united the wound with wire sutures, introduced a drainage-tube, supported the scrotum on a pillow of marine lint, and applied no dressings. On the sixth day, I removed all the stitches and the drainage-tube. As the patient felt weak, restless, and despondent, I ordered a more generous animal diet and stimulants, instead of the simple soup; milk and farina he had been taking hitherto. On the eighth day, the wound had healed without suppuration, except at each extremity, where the tube had emerged, and above where the ligatures lay. Those of the vasa deferentia came away on the fourteenth, and that of the spermatic artery on the twenty-third day after the operation.

In his own words, "he did not suffer an ache or pain in the wound from first to last," nor any discomfort, except the weakness already alluded to, until the tenth day, when he became feverish, and felt pain in the region of the liver and stomach.

Next day (eleventh) an attack of sub-acute rheumatism discovered itself in both shoulders and one wrist, and during the four following weeks the larger joints of both extremities were successively affected, when at length convalescence set in, and gradually his health became re-established.

Remarks.—In Case I., the gentleman never had gout, nor was there any family history of it. For many years he had had a constant slight bronchial catarrh, for which he had only once required treatment. About a year ago he had several eczematous patches on the back, and when examining these some large red-barred cicatrices in the axillary and cervical regions disclosed a pre-existing strumous constitution. The injury discovered the actually existing diathesis, but in so rare and doubtful a manner that no decisive opinion could be given until the thirteenth day, when, by the light of the fresh attack of gout, all the past cerebral symptoms were made plain. It seems probable that the *locus* was at first determined by the excessive mental occupation to which the patient applied himself immediately after the shock of the accident. The appearance of the malady in the ankle and wrist can readily be explained.

In estimating the causes which could have elicited in the second case the rheumatic attack, the element of shock must be eliminated, for, notwithstanding the mitral murmur, chloroform was freely administered, and well borne, nor was there any loss of blood, except in small quantity, from one or two superficial scrotal veins. Neither did the patient suffer from pain or suppuration after the operation. I am inclined to lay the blame partly on the antecedent dread, but in greater part on the too early return to an animal diet in a patient whose digestion was slow and imperfect, and where excretion was not assisted by exercise. The sharp attack of fever and the situation of the pain at first made me dread a pyæmic seizure, but my anxiety was soon dispelled on observing the number of joints affected, the absence of typhoid symptoms, and the rapid development of those characteristic of rheumatism.

It is interesting also to note, that in both cases there is distinct evidence of a change of the constitutional state: in the first case, from a strumous to a gouty, and in the second, from a rheumatic to a cancerous, or rather to one made up of both conditions.

The practical deductions which may be drawn from these cases for future guidance are—Where a person of gouty constitution has received an injury, endeavour to secure mental as well as bodily rest; and, secondly, where an individual of rheumatic diathesis has been the subject of an operation, return to nitrogenous food only after convalescence has been some time established.

ARTICLE VII.—*Cases of Paraplegia.* By T. GRAINGER STEWART, M.D., F.R.C.P.E., Physician to the Royal Infirmary, and Lecturer on Clinical Medicine and on the Practice of Physic, Edinburgh.

(*Continued from page* 63.)

CASE II. *Paraplegia with anæsthesia, intense neuralgia, and wasting of muscles, following upon fatigue, exposure to cold, and malarious poisoning. Treatment by Opiates and Quinine. Recovery.*

MR A. B. first consulted me on 28th October 1874. He was then twenty-four years of age, had always been healthy, but led a somewhat intemperate life as he grew into manhood. He married before he was twenty, and went to America, where he entered upon practice as a veterinary surgeon.

In September 1873 he was wrecked in one of the large American lakes, was about forty-five minutes in the water before he was rescued, and thereafter was obliged to remain in his wet clothes for some hours. During the succeeding days he was exposed to malarious poison, and ague came on within a week. This malady recurred from time to time until the winter, and then, in consequence of a severe epizootic affecting horses, he was very hard worked, had to go about on foot instead of driving, and often slept in his wet clothes. In April 1874 he began to suffer from pain in the toes of the left foot, soon afterwards in those of the right also. And he noticed that when his feet touched the ground he felt it very hard and painful, while at the same time if a needle were driven into his calf he did not feel it at all. The pain gradually extended up to the knee, then to the front of the thighs. It was constant, but was occasionally greatly aggravated and of a lancinating character. These exacerbations were not periodic. From July onwards he had a feeling of numbness in the legs, with the sensation of "pins and needles," and in that month he noticed that his sight was impaired. During the earlier months of the illness he could walk about, but he felt his muscular power diminishing, and noticed that the legs were wasting. In walking he had

to swing his leg round in the arc of a circle. In July he lost power altogether, and was almost confined to bed. As he experienced no benefit from the treatment by means of strychnia, Easton's syrup, iron, bromide of potassium, and blisters, which were tried in America, he resolved to return to Scotland. During his voyage he suffered greatly, and he thought his symptoms were aggravated by the use of chloral, which was freely administered.

On his arrival in this country I was asked to see him. I found him pale and emaciated, but free from any disease except occasional attacks of ague, and the following nervous symptoms:—He complained of almost constant intense pain in all the nerves of the legs, aggravated by movement, either active or passive, or by touching the skin. He had no pain in the trunk, but frequently felt it cold when there was no real lowering of temperature. He had pain in both arms, especially the right. Sensibility to touch was lost in the toes and feet, gradually improved towards the trunk, where it was normal. In the hands it was normal. Sensibility to heat and cold, and to tickling, was lost in the feet. The special senses were, and muscular sense appeared to be, natural. Reflex action was abolished in the feet, diminished in the hands. There was no alteration of the functions of the bladder. The bowels were constipated. He was unable to walk, or even to stand. When lying down, he could perform, although very feebly, flexion and extension, abduction and adduction of the thighs; could still more feebly move the legs on the thighs; could make a slight movement of the left ankle-joint, none of the right; and he could not move his toes at all. There was no loss of power in the trunk, nor in the arms above the elbows; but while pronation and supination of the forearm were normally performed, flexion and extension of the wrists were impaired, and the fingers and thumbs could only be slightly used. The right hand was worse than the left. There was no spontaneous fibrillary twitching or jerking of the muscles, but some twitching was observed on voluntary effort. All the muscles were diminished in bulk proportionately to the diminution of power. There was no tendency to sloughing of the skin. The cerebral and mental functions were normal, excepting in respect of sleeplessness, due to the intense pain. There was no peculiarity of the cranium or spine.

The treatment adopted at first was careful dieting, complete rest, the administration of iodide of potassium, with opiates for the relief of pain. The last-named afforded temporary relief, but the iodide proved useless. Liquor strychniæ was then given in doses of 5 minims three times a day, but without benefit. The amount of opium required was very large, 8 grains being sometimes taken in the course of a night. Hoping to relieve the pain, I ordered, early in November, full doses of quinine, and for many weeks from 20 to 30 grains were taken daily. Soon after it had been begun, improvement set in; and on the 18th of December the following report

was taken: Pain has disappeared from the thighs, but continues in the legs and feet, and occasionally there is severe neuralgia of the head. The feet feel less cold, but very heavy, and they are still numb, and sometimes have a twitching sensation. Sensibility is still diminished. Movement and touch are less painful. Tickling the right sole is felt painful. Reflex movements have reappeared in the legs, and voluntary movement is paralyzed in the same groups of muscles as before, but in a less degree. The movements of the hands are greatly better. The nutrition of the muscles is everywhere improved. The opiates had now become less necessary, but the quinine was perseveringly employed.

In the beginning of February 1875, the pains had disappeared from all parts except the feet, and were only occasionally felt there. He still complained of coldness of toes, and occasional formication. The sensibility was almost natural, although impressions were conducted slowly. The sensitiveness to movement and contact was greatly diminished, but warmth was felt as pain. Reflex action was almost natural. Voluntary motion in the hands and arms was almost perfect. The muscles of the thighs were normal; those of the knees were perfect. Flexion, extension, eversion, and inversion of the foot were still all somewhat feeble. The left foot was better than the right. He could, however, stand without support, and walk with the aid of crutches. The nutrition of his muscles was greatly better. He could sleep without any opiate, being almost free from pain.

He steadily progressed from this time, and in the month of April of the present year I met him driving a gig on Corstorphine Hill. He laid aside the reins, jumped down from his place, in order, as he said, to show me his paces on the road. They were almost perfect.

On first taking charge of this case I regarded it as a very grave one, and did not venture to hope for the speedy recovery which actually occurred; yet I could not refer it to any of the well-known types of spinal disease. It seemed grave because of the intensity of the pain, the completeness of the paralysis, sensory and motor, but, most of all, because of the atrophy of the muscles. Notwithstanding the intensity of the radiating pains, it was evidently not a case of meningitis, as was shown by its mode of development, by the marked paralysis, and by the absence of rigidity of the spine, and of aggravation of pain on movement of the back. It was also certainly not myelitis, although the rapid wasting of the muscles suggested that disease, for there was no marked affection of the sphincters, no tendency to sloughing of the skin of the affected parts; and while the radiating pains in the limbs were more severe and continuous than in myelitis, there was no local spinal pain, and no girdle pain, no spinal tenderness, nor special sensitiveness to the hot sponge. It was also not a result of congestion of the cord or its membranes, or of both, because the anæsthesia was so well marked, the pains were so intense, and so

intensely aggravated by movement of the limbs, the paralysis of the muscles was so complete, and their nutrition so distinctly impaired. It certainly was also not to be referred to spinal anæmia, there being nothing to account for such a condition in the patient, and the group of symptoms being much too pronounced. There was, of course, no possibility that sudden extravasation had been the cause; and careful inquiry showed that neither diphtheria, nor any other disease usually recognised as a cause of paraplegia, had preceded the attack.

It is difficult to arrive at a positive conclusion as to the seat of the pathological change in this case. It might be in the nerve-centres, or in the nerves themselves. Were we to hold that it was located in the nerve-centres, it must be assumed that it was widely distributed, involving all the columns of the cord and a great part of its extent. That all the columns were involved, must be assumed, seeing that sensation, motion, reflex action, and muscular nutrition were all affected. That a great part of the cord must be held to have been diseased, was shown by the affection both of the legs and the arms. But there is much difficulty in the way of accepting this hypothesis, in consequence of the absence of other spinal symptoms. If the whole thickness of the cord were to so large an extent diseased, we should certainly expect to find in the spine some tenderness on pressure, or some pain on movement, or sensitiveness to heat or cold, some affection of the bladder, the bowels, the digestive organs, the respiration, the circulation, or the pupils; but all of these were unaffected.

On the other hand, it may be held that the nerves themselves were the seat of the morbid process. The distribution of the symptoms affecting both the upper and lower extremities, and increasing in intensity as it passed down the limb, taken along with the order of development, both pain and weakness having first appeared at the periphery and spread towards the centre, may be regarded as supporting this view. Some authorities regard these as important evidences of the peripheral seat of a lesion, and I am inclined to agree with them, notwithstanding the consideration advanced by Dr Handfield Jones.[1] He says that such an extension of disease from periphery to centre by no means implies that the extremities of the nerves are first affected, and that the morbid action advances centrad to the cord. It really means that one set of nerves is affected after another, leaving it entirely an open question whether the nerve-roots or the distal extremities are the seat of the disorder. It is clear, says he, that the same phenomena would ensue, if we suppose the morbid action to be located in the cord, and to proceed gradually upward from below. I am not aware of any anatomical facts as to origins and distributions of the individual nerves of limbs which would bear out this statement. While it might be true enough in the case of a paralysis spreading up the trunk, and involving one intercostal nerve after another, it

[1] Functional Nervous Disorders, 2d edit., p. 145.

is surely not so in the case of an affection of a nerve of a limb. There is, for example, no reason to think that the utmost peripheral branches of the sciatic take origin in the lowest segment of the cord from which that nerve derives its fibres. Such considerations as these, taken along with the results of clinical observations, forbid my accepting the view of Dr Jones.

Again, the sensations experienced by the patient resembled those resulting from pressure on the nerve-trunks when the limbs are in the condition popularly termed "asleep." There was the same anæsthesia, the same motor paralysis, the same painful feeling when a muscular movement was made, or when the leg was touched, only the pain was far more severe. This, however, shows that a condition analogous to that of our patient, although of a passing kind, may be produced by temporary influences acting merely on the nerves; but one sometimes sees corresponding symptoms result from the pressure of tumours, such as aneurisms, upon nerve-trunks. Aneurism of the innominate artery, for example, may lead to very similar changes in the arm by pressure on its nerves.

Assuming, then, that, so far as our present knowledge goes, it is reasonable to conclude that the nerves were the seat of the lesion, the question suggests itself, What was its nature? Of this we can say nothing certain; but I shall quote a sentence or two from the valuable work of Dr Handfield Jones.[1] Speaking of the nature of paresis, he says:—"It may be somewhat elucidated by reflecting on the condition of a nerve such as the median or ulnar when affected by severe neuralgia. The function of the nerve is temporarily abolished, the skin which it supplies is utterly anæsthetic, and the muscles palsied. Under the influence of quinine, and perhaps galvanism, the sensory and motor power is restored. It is certain that these remedies would not amend a state of neuritis; and I can see no other view to adopt than that, owing probably to some minute molecular derangement of tissue depending upon impaired nutrition, the nerve-fibres are no longer capable of conveying centrad and peripherad the impressions they normally transmit." It obviously implies but little to say that probably minute molecular changes take place in such a condition, but the statement may help some minds to form a conception of the kind of change which may be supposed to exist in nerves affected as were those of our patient.

Whatever may have been the nature of the morbid process, it is manifestly of the utmost importance to inquire into the causes which induced it. Various factors probably played a part in its production. Among the circumstances preceding the attack, there were three, which are well recognised as causes of paraplegia, viz., wetting, fatigue, and exposure to cold. But the accident on the lake preceded the illness by seven months, and the special fatigue and frequent wettings occurred during the winter, and certainly were not immediately followed by the paralysis or the pain. The

[1] *Op. cit.*, p. 138.

question then arises, Whether the malarious poison could have had any share, or even a leading share, in its production?

Eisenmann[1] remarks that malaria, like cold, is capable of producing not only febrile, but all kinds of non-febrile affections of the nervous system, and it may be added that all parts of the nervous system may be affected. With the view of getting light upon this case, I have searched such authorities as I have had access to, and, while I have not succeeded in finding any example of malarious nervous affection exactly corresponding to the one we are considering, I have found many cases which in some measure bear upon it.

The mental functions have long been known to be occasionally influenced by malaria. Sydenham[2] recognised the fact that a peculiar form of mania in some instances follows long-continued agues, that it sometimes results in fatuity, and terminates only with the life of the patient. Bucknill and Tuke[3] recognised the same fact; and Griesinger,[4] entering more minutely into the subject, describes one kind of case in which mania takes the place of an ague fit, the proper ague fit never occurring; another, in which the regular ague paroxysms, having existed for a time, disappear, and are replaced by maniacal attacks, these attacks frequently assuming a remittent or continuous type, and becoming chronic; and a third form, which is a uniform persistent chronic affection, often coming on after the cessation of the ague.

That the sensory functions are often affected by malaria is well known, for all physicians concur in recognising malarious neuralgia as a very common affection. Such neuralgiæ are, however, generally local; but Dr Fonssagrives,[5] of Brest, records two examples of general neuralgia due to malarious poison, cases which present numerous points of analogy to that under consideration, but differ from it in respect that there was distinct periodicity of the symptoms, and less muscular palsy.

The motor functions, again, are frequently affected. Romberg[6] states that various old authors record examples of intermittent paralysis. He himself met with one case in 1830. A woman, sixty-four years of age, who had been quite well the day before, was suddenly seized with paralysis of the legs, attended by involuntary escape of urine and fæces. When lifted out of bed she could neither walk nor stand, but fell down all of a heap. Sensibility and consciousness were unimpaired. Temperature was cool, pulse quiet, breathing normal. She made no complaint of pain in the back. In the absence of any other indication, he ordered 16 cupping-glasses to be applied to the dorsal, and a blister to the lumbar region, and some arnica and ammonia to be given internally; at the same time, warning the patient's

[1] Die Bewegungs-Ataxie, Wien, 1863, p. 191.
[2] Sydenham's Works. Sydenham Society's edition, vol. i. p. 93.
[3] Psychological Medicine, 2d edit., p. 287.
[4] Griesinger on Mental Diseases. Syd. Soc. transl., p. 184.
[5] Archives Générales de Médecine, 1856, i. p. 277.
[6] Nervenkrankheiten, Dritte Auflage, 1857, p. 752.

friends that death was the termination to be expected. Next day he was surprised at the change of condition, for the patient came led by her daughter. She complained only of weakness of the limbs, but was all right in respect of the bladder. Next morning, however, damped the ardour of his satisfaction at the speedy effect of his remedies, for all the symptoms had recurred at the same hour as they had come on two days before. There was then no doubt as to the nature of the illness, and the presence of other indications of intermittent fever made it the more certain. Still, to make quite sure, he waited for a third attack. It came duly, and then, under quinine, the patient rapidly recovered. This case is the classical example of malarious paraplegia, but others are on record, thus:—Handfield Jones[1] tells us that M. Bailly describes how, during his stay at Rome, when he was evidently under the influence of malarious infection, he experienced every day, about three or four P.M., an extraordinary weakness of the legs, so that he could hardly get along, and was obliged to use his arms, which were unaffected, to pull himself by the banisters up stairs. He was cured of this symptom by quinine. The same authority relates a case, of which the history was communicated to him by a friend:—"H., æt. 42, labourer, was seized, 9th July, while at work, with violent pain across the loins, and with numbness running down the legs. The urine was retained, so that he could not pass it, and there was involuntary discharge of fæces. When first seen he was lying on his back at full length, the toes pointing straight out, the skin cold, the legs paralyzed and insensible, even when pinched with the nail. He was quite unable to stir. No pain or disorder elsewhere. He was quite conscious. Ordered an enema of turpentine with aloes, and calomel, gr. v., and pulv. jalap. co. gr. x. After the enema and purge had acted freely the limbs still remained powerless; the pain continued, but was relieved by a croton-oil liniment. 11th July, Quin. disulph. gr. x. ter die. The next day sensation returned, and the next he could sit up in bed. In a week he walked to the dispensary, and soon after was quite well."

It is, of course, unnecessary to bring forward any proof that the vaso-motor function is affected by the ague poison, the ordinary phenomena of the paroxysm affording sufficient evidence. Among other affections of nerves arising from malaria may be mentioned spasmodic cough, asthma, megrim, hiccup, and insomnia.[2] It is thus certain that all the chief functions of the nervous system may be interfered with by the action of this poison, so that we may safely conclude that it is capable of producing alterations in any part of the system, and has no exclusive affinity for any part.

The chief difficulty which stands in the way of accepting the hypothesis that our case belongs to the group of malarious affections is the absence of a periodic or even a markedly paroxysmal character. But this consideration is, in my opinion, outweighed

[1] *Op. cit.*, p. 83.
[2] Trousseau's Clinical Medicine. Syd. Soc. transl., vol. v. p. 29.

by the admitted possibility of malaria inducing a great variety of nervous symptoms, the certainty that these symptoms are not invariably periodic, the history of exposure to the poison, the existence of the tendency to ague before, during, and after the paraplegia, and, above all, by the remarkable and speedy improvement which followed the administration of quinine. I quite admit that this view is one which cannot be held to be absolutely demonstrated, but I am unable to suggest any better explanation of the case.

(*To be continued.*)

Article VIII.—*Paraffin Epithelioma of the Scrotum.* By Joseph Bell, F.R.S.E., Surgeon to the Royal Infirmary.

(*Read before the Medico-Chirurgical Society of Edinburgh, 1st March.*)

At the last meeting of this Society we were favoured with a most interesting paper comparing and contrasting diseases of vast range and importance. These few notes I am now to read are in curious contrast, as describing a purely local surgical lesion due to a special cause, which seems to be taking the place in our nosology lately vacated by another local lesion, the cause of which has been nearly got rid of.

The name, "chimneysweep's cancer," is an admissible one, from old associations and long usage. "Scrotal soot cancer," though it implies a theory, has never been so much adopted. By these names, surgeons describe a disease of the nature of epithelioma, attacking first, as a local disease, the scrotum, yet, if left, apt, by infecting the glands, to poison the system, though, at its outset, it is merely a result of a local specific irritation. *Local,* because its seat of election seems to depend simply on the difficulty of cleansing the soot stains from the rugæ of the pendulous and mobile scrotum. *Specific,* because it seems to result from the contact only of certain varieties of soot—coal, not wood, even of coal soot, from English rather than Scotch coal.

Chimneysweep's cancer is now a disease of comparative rarity. This is easily explained by the legislation against climbing boys, and invariable use of brushes and other mechanical appliances.

But, if chimneysweep's cancer is rare, and becoming rarer every year, I believe we are to find a successor for it in a malady affecting the labourers exposed to the fumes of paraffin in shale works. Of this disease—epithelioma of scrotum—ascribed by patients to paraffin fumes and contact with the oil—I have seen two cases within the last eighteen months, which I now briefly report.

Case I.—James Fisher, æt. 47, married, labourer in a paraffin work at Blackburn, was admitted to Ward VI., 14th April 1874. He had an extensively ulcerated scrotum, with elevated exuberant granulations, but not painful. This had existed for four or five

years, and had already been cut several times. The glands were not affected, and general health is good. I excised the whole mass very widely. It bled profusely, but made a rapid recovery, and he was dismissed cured 27th April 1874.

His arms were covered with an eczematous eruption.

CASE II.—James Marshall, æt. 34, admitted to Royal Infirmary, 20th October 1875, suffering with epithelioma of scrotum.

History of the Disease and its Duration.—Two years ago, patient, who is a worker in paraffin, first noticed a small pimple on scrotum, which, by constant scratching with unwashed hands, grew gradually larger, until the present tumour resulted. There is a thin discharge from the tumour, and it measures about three inches in diameter. It is adherent to the skin, and, as was subsequently found upon operation, it was also adherent to the right tunica vaginalis.

The operation was performed on 23d. The tumour upon removal was as large as a small apple, was adherent to right tunica vaginalis, a small portion of which was cut away, and the wound stitched with carbolized silk cut short. There was the usual amount of bleeding. The glands in both groins were much enlarged, but not very hard.

Progress of the Case.

	Temperature.		Pulse.		
	M.	E.	M.	E.	
Oct. 20.	—	99·°	—	85	—
„ 21.	99·°	99·	95	105	—
„ 22.	98·5	99·2	120	—	—
„ 23.	99·	98·6	110	95	Operation.
„ 24.	98·6	98·7	—	102	Slight oozing. Slept well.
„ 25.	98·	98·8	112	90	Slept well.
„ 26.	98·4	—	96	90	Given medicine; bowels opened four times.
„ 28.	98·	—	112	90	Stitches removed, and straps put on.
„ 30.	98·2	—	80	—	—

Patient continued to progress, and was discharged cured on 10th November.

The patient also had a paraffin acne over those parts of the backs of his hands and arms not usually protected by his clothing. This acne, he says, is common to the workmen in his factory.

25th Nov.—I saw the patient again to-day. The wound is quite healed, and glands in groin much diminished in size.

The eczema which the first patient suffered from seems to be a more advanced stage or possible variety of the eruption which the second case exhibited to a very remarkable extent, but over a limited area. Wherever his hands, arms, and legs were not covered by his woollen shirt and trousers, an exaggerated form of

acne showed itself. At the roots of the hairs were large black pits, each containing a mould resembling, but in a very exaggerated degree, the *comedones* seen on forehead and alæ nasi. Comparatively few of these had either inflamed or suppurated. These, the patient said, were common in paraffin-workers.

These have been already carefully described by Dr Ogston of Aberdeen, in the pamphlet I hold in my hand, which was published in the *Edinburgh Medical Journal* for December 1871. In it both varieties of skin disease to which I have alluded are described and figured. I have not, however, seen any notice yet of the form of scrotal epithelioma just described, and which I believe will be found not unfrequently under the circumstances detailed.

ARTICLE IX.—*Personal Experience of Death from Aneurism and Disease of the Heart in the Service: A Clinical Note.* By Surgeon-Major WILLIAM CURRAN, A.M.D.

(*Continued from vol.* xxi. *page* 535.)

CASE VII. *Simple Hypertrophy.*—Private E. H. was admitted about 12 noon, and expired suddenly about 3 P.M. of the same day. It appears, and this is all I can now recall in connexion with his case, that he was sent to hospital by order of his sergeant, for a weakness or fainting fit he suffered in barracks, but he soon rallied from this, and was seen to walk about the ward a short time before his dissolution. On subsequent examination, the heart was found to be greatly hypertrophied, and to weigh 1 lb. 3 oz. A firm discoloured fibrinous clot adhered to the walls of the right ventricle, and extended for some distance into the pulmonary artery. The walls of the left ventricle were also greatly hypertrophied, and its cavity was filled with clots of dark coagulated blood. Numerous bead-like excrescences were attached to the semilunar and tricuspid valves, and the aorta, dilated beyond the sinus, was very much desiccated and thinned. Its surface was studded with deposits of a yellow, cheesy-looking substance, in a disintegrated condition, which resembled ulceration; and whether there was a syphilitic taint or not, I am unable to say.

CASE VIII. *Dilatation with Valvular Deficiency.*—Private J. S., æt. 30, has completed sixteen years' service without being much in hospital, and has only suffered for the last five months or so, and then only after exertion, from pain in the precordia, palpitation, and shortness of breath. On admission a loud systolic bruit could be heard, with equal distinctness at base and apex; the pulse was jerking and indicative of aortic regurgitation, and the diagnosis arrived at was enlargement of the substance of the heart, with dilatation of the left side, and increased impulse. The disease soon

assumed a formidable character, the dyspnœa increased in severity, the murmur became diffused all over the precordial region, along the sternum, and beneath the clavicle, and a purring tumour was communicated to the hand when it was flattened against the chest. Œdema of the extremities soon set in, and he died shortly afterwards with symptoms of suffocation—congestion of the lungs. The post-mortem supported this belief by disclosing an enlarged and dilated condition of the left ventricle, erosion of the inner coat of the ascending aorta, and loss of substance of the aortic semilunar valves. Both lungs were congested, particularly so the right, in which there were several patches of apoplectic extravasation, and the mucous membrane of the stomach was found to be the seat of general venous stagnation.

Case IX.—[The two following cases—for the notes of one of which I am indebted to the courtesy of a friend—are introduced here as typical instances of forms of heart disease that occasionally occur in the service. The first is intended to illustrate the appearances produced by fever and anæmia in the heart, while the second may be regarded as an example of that form of weak heart wherewith many are afflicted in every form of life. This kind of heart is good enough for ordinary purposes, but when the strain comes it gives way, and as this strain is more a matter of compulsion in the service than it is out of it, we meet more examples, *cæteris paribus*, of its effects, mainly rupture or fatal syncope, in military than in civil life. This, according to my experience, is the cause and explanation of the phenomenon, and this, I may add, was the first and only occurrence of the kind I have met with among soldiers, in the scores of miles and marches I have accompanied them in this country.]

Corporal W. K., æt. 24, came under notice in a state of great depression, with symptoms of continued fever, and anæmia appears to form a conspicuous feature of his case. Deafness, frontal pain, and indifference almost amounting to positive dislike for food, soon supervened; and though these were mitigated by the application of a blister to the nucha, and the use of quinine, ether, and diaphoretics internally, the appearance of anæmia, pallor, and despondency remained unchanged, and there was no attempt at reaction or removal of the febrile irritability. Brandy, egg-flip, and chicken-broth, were freely allowed, but he had no relish for either, and his weakness and pallor increased apace. Muttering delirium set in on the fifty-third day, and he died quietly on the following afternoon. On section the heart was found to be small, but not contracted or adherent; its muscular structure was blanched, attenuated and very friable, and its larger outlets and cavities were blocked up with masses of fibrine. Its inner surface presented an appearance of granular infiltration, or rather of white capillary mottling and a velvety smoothness, which would seem to indicate subacute

endocarditis, or failure of nutrition from tenuity of blood or other systemic cause. There was no disease of the valves, and in point of size and appearance it presented nothing abnormal.

CASE X. *Fatal Syncope.*—"Regarding the man you inquire about" —I quote from the letter above referred to—" who died suddenly, I have to say that he was taken sick on evening parade, and died immediately on reaching the hospital. I saw him a few minutes afterwards, and I thought he must have died from aneurism. Next day I made the post-mortem. Took out the whole of the aorta, with lungs and heart attached. J. S. kept nagging at me the whole time, telling me that he feared I was making a mess of the whole business; however, we were perfectly satisfied that there was no aneurism. The lungs were much congested, and the right one was closely adherent to the pericardium, which must have prevented the fair play of the heart, and also throughout the whole of its extent to the diaphragm. There were patches of atheroma in the aorta, and the heart itself was large and flabby. J. S. said it was fatty; I said it was not. The blood seemed to me to be more fluid than usual; but J. S. did not think so, and would not let me write it in the post-mortem for fear of questions. Medical opinion—death from syncope, with sudden congestion of lungs; the running drill was too much for him; his heart, if examined under the microscope, would have shown, no doubt, fatty degeneration of the sarcous elements, with obliteration of the transverse striæ." I have transcribed this letter *verbatim et literatim*, because it fully realizes my own ideal of the case, and I have no doubt at all that this poor man died of fatal syncope, brought on by the excessive exertion to which he was subjected. I am equally inclined to adopt my friend's view of its pathological significance; and having now exhausted my record of heart disease in the service, I will, after some interlocutory remarks, by way of comment on the above, betake myself to a review of the other phase of the question.

The cases cited above, however imperfectly described, are calculated to suggest some points for criticism, which the military pathologist may not ignore. Of these the first would necessarily include some account of the prevalence and causation of this class of diseases in the service; but, for the reasons already given, I am unable to follow up this with the minute and searching comprehensiveness its importance deserves; and, moreover, I do not believe that heart disease is commoner in the present day in the army than it is out of it. Could we by any means bring together to-morrow three thousand men from the streets of London, Birmingham, or Liverpool, from those of Cork, Dublin, or Belfast—or, to go farther afield, from the same parts of Edinburgh, Glasgow, or Aberdeen, and could we compare these with a like number of soldiers of the same ages, from Aldershott, Shorncliff, or the Cur-

ragh, or, better still, from the headquarters of regiments in large garrisons,—my belief is that the balance would be in favour of the latter, in respect of immunity from the graver forms of the diseases here reviewed. This I know is not the general belief, and certainly it was not at first my own impression; but then my early experience was drawn from the records of a depot battalion, and to those who are acquainted with the organization of that system, I need say nothing of its composition. Raw recruits, or stagey veterans, broken down by intemperance, syphilis, or service abroad, constituted its principal ingredients; and one might as well listen for the "tongue" of the full-blooded fox-hound in the angry yelp of a street cur, or look for a Derby winner in a hack livery-stable, as expect to find a sound body of soldiers in such an assembly of cripples. Any inference, therefore, that might be drawn from such a source, would be erroneous; and I am convinced that a great deal of the exaggeration that prevails among the public on this point, is due to that sensational penny-a-lining which is so much encouraged by the cheap papers at home.[1] I have heard of a surgeon who, giving evidence in a case of sudden death in his corps, was pointedly asked by one of the jury to explain, how it was that so much heart disease prevailed in the army? He immediately replied, that such an exceptional prevalence was no part of his experience, and he added rather significantly, that if the members of the court before him would submit to an examination, he made no doubt but that some of them would be found to be the subjects of unsound hearts. This proved too much for "the twelve honest men,"—a dead silence ensued. The intelligent juryman of the period held his tongue, and the inquiry was allowed to proceed without further interruption. Were such a test as this possible, it would settle the question, by showing that there are scores of per-

[1] I had the curiosity to cut out of a number of a popular military paper the following entries, in connexion with which I will only observe, that had these deaths occurred in their remote villages, in civil life, nobody would, in all probability, have ever heard of them. "Carent quia vate sacro:"—"74th Highlanders; a private of the regiment . . . . . fell down dead whilst on parade. . . . . Disease of the heart was the cause of his death." "79th Cameron Highlanders; a private of the regiment . . . expired suddenly in the barrack-room . . . . on Sunday last. Deceased appeared in perfect health up to within a few minutes of his death. Disease of the heart was the cause of his death." "Sudden death of a soldier." "An inquest was held a few days ago at Woolwich . . . . as to the death of Gunner Murphy, ... who had been sixteen years in the service. The evidence proved that the deceased was engaged in scrubbing the room . . . . when he exclaimed that he feared he should faint, and almost immediately expired. The deceased had been suffering from disease of the heart." The application of such startling reports to the point of my argument must be so obvious as to render any further reference to them unnecessary on my part. Dozens of similar statements might, doubtless, be unearthed by a curious searcher from the files of any of our leading military papers; but I have no means of proving this; and, besides, I have for some time back given up reading details of presentations of tobacco-pouches and inkstands.

sons going about their ordinary business who might exclaim, like King John, "My heart hath one poor string to stay it by;" but it is not, and meanwhile we must content ourselves with such materials as are supplied to us for its elucidation by the public offices. These prove, so far as I can interpret them, the very reverse of the popular belief, and I must again repeat it as my own individual conviction, that there are not, in this country at least, any agencies which tell in this respect more against the soldier than they do against his civilian brother.

The second point for our investigation concerns the question of the prevalence of hypertrophy, as *the* pathological feature of commonest occurrence in the service, and its dependence or otherwise on equipment, or on previous or contemporary valve lesion. Against the influence of the former I have already pronounced unequivocally, so far as India is at present concerned, and the bearing of the latter towards it will be discussed further on. But this, though the most conspicuous and striking pathological change, is by no means the sole one; and atheroma of the vessels, dilatation of the walls, and thickening of and opacity of the endocardium, are also frequently met with. As this little paper, however, only contemplates dealing with the subject from a limited or rather from a personal point of view, any protracted discussion of such peculiarities would be obviously out of keeping with its scope and object. I will, therefore, pass at once to a consideration of the first named condition. One or more of the others are so closely connected with, if they are not entirely dependent on, this, that any exhaustive review of hypertrophy must include an account of them. Impediment to, or interference with, the current of the circulation is, doubtless, at the bottom of all; and, as regards the former, the heart enjoys no immunity from that change, "which occurs in other hollow organs in which we see dilatation along with greater development of the muscular fibres from the existence of an obstacle to the exit of the contents, requiring increased efforts for the accomplishment of the normal expulsatory function."[1] Chevers[2] regards it as the result, "in at least ninety-five per cent. of the examples of heart disease we have to treat, of the operation of a cause of fixed obstructions;" and further on he describes it, "as the prelude to a disease which is its precise converse." Such being the case, we can easily account for its alleged greater predominance in the army, as its subjects are invalided before there has been time for the development of those other subsidiary or counterbalancing changes, which are so well known to pathologists, and which, for the reasons just adduced, must be much commoner in civil than they are in military life. The same remarks would, I think, apply to valvular incompetence or enlargement, if, as is generally believed, these be due to the influence of acute rheumatism—for that is confessedly a very rare complaint among soldiers

[1] Trousseau, op. cit., vol. iii. p. 398. [2] Op. cit., p. 396.

in India; and as to fatty degeneration,[1] I can see no reason why that condition should be as common in the service as it is notoriously out of it. My inquiries into the antecedents of endocarditis are not sufficiently extensive or advanced to justify any inference being drawn from them at present; but I am satisfied that it occurs more frequently in the service than is generally supposed; and as to that curious occurrence, which some military writers have fancifully dubbed the "soldier's spot[2] or button," and which others have ascribed to the pressure of the cross belts, it has been known for years not to be peculiar to soldiers; and its existence, when it does occur, has probably as much connexion with the cross-belts as Macedon has with Monmouth, or the Goodwin Sands with Tenterden Steeple.

Case I. *Aneurism of the Common Femoral.*—The first case of aneurism in the service whereof there is any notice among my notes, occurred at Cawnpore in the person of a robust healthy Irishman, who came to hospital complaining of pain and stiffness in the right groin, the result, as he alleged, of a strain, which occurred to him while descending the upper flight of stairs with which the double-storied barracks at that station are provided. In short, he slipped and fell backwards on his hip, and the effort he made to save himself was probably the cause of the rupture which led to the mischief. Finding that the pain did not yield to the measures employed for that purpose, a closer examination was instituted, and this revealed the presence of a soft, compressible, and somewhat lobulated swelling, which manifested the characteristic symptoms of aneurism. It

[1] Some facts established by Quain and others, in connexion with this lesion in civil life, appear to me to be incompatible with a belief in its prevalence in the army. These are its more frequent occurrence in males than in females, "in the proportion of twenty-four to nine" (op. cit., p. 150); its being confessedly a disease of middle or rather of later life; and its not uncommon termination in death by rupture of the heart. Now, the presence of a soldier of forty-five in the ranks must be the exception rather than the rule; and as to rupture of the heart in the army, I have never seen a case, nor have I come across an example of it in any of the regimental records I have examined. Dr Chevers informs me that a good paper on the point, from the pen of Dr Charles Macnamara of Calcutta, appeared in the Indian Annals of Medical Science for October 1855, p. 170.

[2] Dr Chevers, alluding, in the letter already referred to, to the stress laid upon these appearances, in connexion with the pack and cross-belts, by a certain writer at home, asks, "Does he not attribute it to the presence of the cross-belts?" After which he adds, "It has nothing to do with the cross-belts, or particularly with soldiers. It appears upon nearly every hard-walled heart." Thomas Wilkinson King gives the true explanation of its existence in his paper on the Safety-Valve Action of the Tricuspid. He terms these spots *attrition patches*. They occur on the most projecting part of the yielding wall of the right ventricle, and are often seen as opacities, sometimes a little raised, upon the most projecting part of the pulmonary artery, and in one or two points on the coronary artery." His statement so entirely accords with, and confirms, my own previous impressions on this point, that I have no hesitation in endorsing every word of it.

was situated just below Poupart's ligament. Pressure removed it for the time, but it returned as soon as this was withdrawn, and there the stethoscope elicited a loud purring pulsatory thrill, which was synchronous with the heart's action, and left no doubt as to its connexion with the femoral artery. Pressure intermediate and otherwise having failed to produce any decided impression upon it, we flexed the thigh on the trunk, tied the leg to that, and both by straps round the neck, and in a very few days we had the satisfaction of finding that consolidation was complete, and that a hard incompressible tumour had superseded the soft yielding mass previously existing there. Mild aperients and low diet were the only other measures resorted to; and it is scarcely necessary to observe, that this kind of cause is equally common to all classes of the community.

Case II. *Aneurism of the Abdominal Aorta.*—About the same time, and indeed in the very next bed, I discovered the formidable lesion prefixed to this report, in the person of a man named John Smith, who was only 28 years of age, and who had been recently admitted, under the heading of dyspepsia. This was associated with a very intractable form of constipation, and it was while endeavouring by palpation of the abdomen to ascertain the cause of this, that the connexion of a graver mischief flashed upon my mind. Having had this impression confirmed by a consultation with my colleagues, and having explained to my patient the nature of his malady, he readily appreciated its gravity, and willingly offered to co-operate with me in any course of treatment I might wish to follow or enforce. Accordingly, I suspended by a rope from a beam overhead a bag loaded with shot, which, being balanced by a nearly equivalent weight attached to the other end of the rope, could be adjusted at the discretion of the patient. Digital pressure was then carried out almost continuously by relays of coolies, or of his more intelligent comrades; and iodide of potassium in large doses, to which digitalis, sulphate of magnesia, and prussic acid, were from time to time added, was exhibited. Whenever the pressure of the shot-bag became unbearable, a bladder of ice was applied, and leeches were occasionally used around the seat of the swelling. Though well aware that the disease could scarcely be susceptible of cure from such merely palliative measures, I yet persisted with them as long as I remained in charge of the case, and I had the satisfaction of feeling that they produced much mitigation, if not an entire arrest, of his worst symptoms. Unfortunately for him, however, the invaliding season approached, and I lost sight of him in consequence of his being selected for change to England. I subsequently saw a notice of his death at Netley from this disease, in one of the departmental reports, and it is but fair to believe that the fatal issue may have been accelerated by his journey.

Case III. *Aneurism of the Abdominal Aorta.*—Private T. C., æt.

29, nine years of service, of which seven have been passed in India, was admitted complaining of erratic pains in the back, of apparently a rheumatic character, and which were supposed to be aggravated by the cold that obtains in November in the North-West. As they did not, however, yield to the treatment enforced, a stethoscopic examination was instituted, and this led to a suspicion of an aneurism of the abdominal aorta. The symptoms were, however, very obscure, and the differential diagnosis of the disease was rather inferred from his general appearance and the character of the dorsal pain, than established by the sounds or the other surroundings. Having been suddenly seized with a severe pain in the side, on the second evening after admission, he became deadly faint, and died before any assistance could be rendered him. On examination of the remains twelve hours after death, a large soft clot, which extended in front of the intestines from the diaphragm above to the pubis below, was found to have escaped from an aneurism that existed between the cœliac axis and the superior mesenteric artery. The fusiform sac, whence the escape had taken place, was about two inches long and one broad, and the artery was dilated uniformly for some distance above and below it. The renal arteries, though they sprang from the sac, did not partake of its enlargement, but the constituents of the cœliac axis were generally affected, and the fissure, through which the blood had issued, was situated under the lobus Spigelii of the liver. There was no displacement of the viscera on either side, and no erosion of any of the vertebræ, and this absence of progress on its part may account for the obscurity of its symptoms during life, and for their sudden and comparatively easy termination in death.

Case IV. *Aneurism of the Arch—Paralysis.*—Private M. C., æt. 39, an old soldier who served in the Crimea and also in the Mutiny, and whose habits were known to be regular and temperate, was admitted for treatment at the hands of a colleague, under the heading of chronic rheumatism. While in hospital he was one day noticed by his comrades to be very low-spirited and desponding. He refused his food, and took no interest in the conversation that went on around him. In fact, his manner and appearance betrayed the influence of some grave constitutional mischief; and it was observed by his comrades that he dragged rather than raised himself out of bed on the occasion of his rising to obey the call of a natural necessity. The attention of the medical officer on duty being called to him, it was found that he had lost all control over his right side, and that the faculty of speech was also greatly impaired. Calomel and croton-oil were immediately administered, but they failed to produce a sufficient effect, and enemata of turpentine and assafœtida had to be frequently repeated before an adequate result could be obtained. He subsequently lost all control over the right side, the tongue was protruded with difficulty,

and, being unable to talk articulately, he was obliged to make known his wants or wishes by signs. These unpromising symptoms, however, gradually gave way. He could speak so as to be understood, and even shuffle along the floor with assistance; but the improvement did not last, and while sitting some days subsequently on a night-stool, violent hæmoptysis suddenly supervened, and meanwhile there could no longer be any doubt as to the nature and gravity of his complaint. He continued to cough up flakes of blood at intervals, and frequently recurring paroxysms of dyspnœa enhanced the urgency of his other troubles. These symptoms gradually increased in severity, without, however, inducing any corresponding measure of distress, and, retaining consciousness to the last, he died quietly on the afternoon of the day following that on which he was seized by the hæmoptysis. On section, six hours after death, the right arm and leg were found to be somewhat wasted, and the emaciation and pallor of the general surface were well marked. The convolutions of the left hemisphere were pale and softened, as were also the floor and walls of the lateral ventricle, and there was no appearance of disease on the right side. On raising the sternum a large ovoid tumour, five inches long and three deep, was seen lying behind its upper end as well as under the sterno-clavicular articulation, and pressing on the upper lobe of the left lung, to which it was firmly adherent. It felt hard and unyielding from the presence of laminated coagula, and implicated in large measure that part of the arch that lies between the origins of the innominate and left subclavian. There was a large cavity at the apex of the left lung, into which the blood from the aneurism had escaped, and this, coupled with the thickened condition of the coagula in the sac, had, doubtless, retarded the now inevitable result. The heart was coated with fat, while the pericardium contained six ounces of clear serum; and there was no disease of consequence apparent elsewhere in the system.

Case V. *Aneurism of the Ascending Aorta.*—Private W. C., æt. 31, twelve and a half years' service, upwards of ten of which have been passed in India, was heretofore considered a healthy man, who rarely applied for medicine, and whose "medical history sheet" affords no evidence of a previous syphilitic or other cachexia. He was brought dead to hospital at Peshawur under the following circumstances:—It appears from the statement of his comrades that he was dressed for guard, and was merely awaiting the bugle-call to "fall-in," when, recollecting something or other, he went towards his box to fetch it. While in the act of raising the lid, and before he had time to do anything more, he fell backwards, and expired a few seconds afterwards without manifesting any appearance of suffering, convulsion, or struggle. Having been appointed a member of the "court of inquiry" that sat a few hours subsequently to investigate the cause of his death, I was asked by the president

to examine the remains and report the result. The following is a condensed summary of the statement submitted:—Head not examined; lungs structurally healthy, though the right was rather closely bound down by old adhesions, and there was some marginal emphysema of the left. The heart felt hard, stony, and ponderous, and on opening the pericardium, upwards of 14 oz. of semi-coagulated blood was found therein. This was traced to a narrow slit or opening in a sacculated aneurismal pouch, that existed in the first part of the ascending aorta. The lining membrane of this vessel was studded with patches of atheroma, and its general calibre was dilated. The walls of the left ventricle were considerably hypertrophied, and the surface of the organ was freely coated with fat. It weighed nearly 16 oz., and there was no other change in the viscera that calls for notice here.

Case VI. *Aneurism of the Arch, opening into the Trachea.*—Private J. J., æt. 34, has completed ten years of service, more than eight of which have been passed in India, and his habits are said to be regular and temperate. When stationed at Delhi in 1859, he fell down a blind well, from which, as he was being extricated by his comrades in a basket or bucket, the rope gave way, and he fell back again into the pit, out of which he had just been raised. While in the act of falling, one of his companions, whether sober or not at the time does not now appear, impelled by that strange and ill-regulated ardour which so frequently seizes soldiers, jumped down after or upon him, and of course the result which this would-be helper wished to obviate, was by his own very act accelerated tenfold. Whether the rupture that ultimately led to the terrible complication described below took place at that time or not, cannot now be precisely determined, but I think it probable that such was the case; and anyhow, when seen by me, the breathing was everywhere so noisy, wheezing, and bronchial as to mask the heart's sounds completely, and utterly preclude the possibility of my arriving at an accurate estimate of the condition of that organ. It was believed, however, by the officer who admitted him, to be the seat of grave if not incurable mischief, but of what character this was could not be accurately made out at the time, for the reasons already mentioned; and so little aware of danger was he himself, that he got up soon after my visit and strolled about, enjoying his pipe in the outer verandah of the hospital. Returning to the ward he lay down to rest, and was soon afterwards seized with a hæmorrhage, which caused him to lose several quarts in a few moments, and finally proved almost instantaneously fatal. On subsequently removing the sternum, which was found to be somewhat denuded of periosteum on its under surface, a large bulging globular mass was seen occupying the arch, in its transverse portion, slightly to right of mesial line, and this had filled up the interval that lies between the base of the heart and the main outlet of the chest on

its anterior aspect. It consisted of a diffused symmetrically dilated and yet sacculated aneurism, whose sac was formed in part of the cellular tissue of the anterior and middle mediastinum and the lining membrane of the right lung, and the cavity of this contained upwards of an ounce of dark semi-organized fibrine that was copiously tinged with blood. It appeared to be entirely external to, though, of course, it must have been continuous with, the channel of the main trunk, and it had eaten its way by ulceration into the trachea, just above the right bronchus, and between that tube and its fellow of the opposite side. The opening through the trachea was clearly of recent origin, and about an inch in length. It involved some four rings of cartilage, and it was through this the bleeding took place that proved so rapidly fatal.[1]

Case VII.—For the following case, which occurred in a corps with which I was never connected, and which so far forms an exception to its fellows, I am indebted to the courtesy of a friend, and I introduce it here in illustration of the insidious origin, painless progress, and hopelessly incurable character of this malady, when it is once fully established. Further comments on these points will find a more appropriate place for discussion hereafter, and meanwhile I will only add here, that the subject of my report was a married man of temperate habits, and that his "medical history sheet" contained no history of syphilis:—"About 6 A.M., on a certain morning in midsummer 1872, I was suddenly called," says my informant, "to see a man in the married quarters of the regiment to which I then belonged, who was reported by the messenger to have fallen down in a fit. Having hurried with all possible speed,

[1] This case is described at much greater length in the *Edinburgh Medical Journal* for April 1872, to which I must refer for further particulars; and if my assumption as to the cause or origin of his ailment be well founded, it must have lasted just ten years. In other words, he fell down the well at Delhi, and was fallen upon at the same time, as described in the text, in 1859, and he died at Noushera on the morning of the 21st of October 1869. I have lately heard of a very similar case in the person of a bandmaster of a cavalry regiment, who practised a great deal on the clarionet, and who accompanied the band on that instrument in all difficult pieces. He was seized with a hæmorrhage while reading a newspaper in his mess, and died on the spot; and on section, two small perforations about the size of shot-holes, between which there was a short vertical slit, in the trachea, the result, doubtless, of ulceration, were the only lesions brought to light in connexion with an aneurism of the arch. His only symptoms during life were a few trivial attacks of hæmorrhage, and a tendency to squeak when he spoke long or was excited; and I have heard more than one senior officer declare, that bandsmen were, according to their experience, proportionately more liable to this kind of lesion than their comrades. Whether this is so or not, I have now no means of proving; but it "stands to reason," I think, that it should be so, and I fancy I have seen cases in point among preachers, singers, and others of that ilk, in civil life. Southey relates in his "Life of Wesley," vol. vi. p. 108, that he, Wesley, "more than once in his journal, . . . recorded the death of men who were martyrs to long and loud preaching, and he frequently cautioned his followers against it." The subject is on many grounds, and for sundry reasons, worthy of further investigation.

I reached the unfortunate man's side in a few minutes after the occurrence, and found him lying on his back on the floor of the room quite dead. On inquiry, I learned from the sergeant of his company, whose batman he had been, that he had sent him (Private L.) as usual that morning to the ration stand for his daily supplies, whence on his return he was heard to approach the door, knock, and ask 'If any one was in?' On being answered in the affirmative and told to 'Come in,' he lifted the latch and fell forwards into the room a corpse. The bread he held in his hand escaped from his grasp, and rolled across the room under the bed. Thinking he had fallen into a faint, the sergeant opened the neck of his tunic and sprinkled cold water over his chest; but these measures produced no impression upon him, and, as already stated, my friend found him, on arrival, quite dead. On section, twenty-four hours afterwards, an aneurism of the ascending portion of the arch was found to have given way and discharged its contents into the pericardium. The tumour was small, about the size of an ordinary walnut, and its walls were very soft and much attenuated. The fissure through which the blood escaped scarcely admitted the tip of the little finger, and the pericardium only contained eight ounces of coagulated blood." In the face of such facts my friend may well ask, why the loss of only eight ounces of blood should kill a full-grown man so instantaneously? and I might supplement it by asking, whether in all such cases the blood itself is not so altered in character as to be incapable of supporting the shock, however mild that may be, inflicted on the system, through the rupture of one of its principal vessels?

Case VIII.—I will summarize here the particulars of three other cases that occurred in the hands of colleagues, with whom I was either associated at the time or subsequently, and thereby endeavour to impart more novelty to these details than they might otherwise command. In the first, the subject of this lesion, one N. K., dropped down dead while engaged on some fatigue near the hospital, and as the weather was very warm at the time, the occurrence was at first ascribed to sunstroke. On examination of the remains, however, specks of ossification were detected on the free surface of aorta, the one of which had given way and allowed an escape of blood into the pericardium. The latter was found to be full of coagula, and this discovery removed, of course, all suspicion of sunstroke. In the second, a man of 29 years of age, and eleven years' service, was admitted complaining of pain in the epigastrium, nausea, and occasional vomiting. He attributed his illness to a cold, and appropriate treatment was enforced. While dozing on his couch, he suddenly started up, looked wildly around him, and dropped back on the same a corpse. A sacculated aneurism, about the size of an orange, which implicated the right side of the ascending aorta, from half an inch above the semilunar valves to the edge of the

arch, had ruptured and given exit to a mass of blood, which, on removal, weighed 1 lb. 5 oz. In the third case, an old soldier, detailed for baggage-guard on the march of his corps, was, while leisurely walking along "at ease," seen to fall forward, and when taken up, life was found to be extinct. The only mark on his body, which was well nourished, was the cicatrix of an old bubo; and he was known as an athlete in his regiment, who carried away several prizes at races from his comrades, and who never complained of palpitation or other cardiac ailment. On section, an opening the size of a threepenny-bit was found in the aorta, about half an inch above the aortic valve, and through this upwards of a pint of blood had found its way into the pericardium. The tissues in the neighbourhood of this opening were soft and ulcerated, and the officer who made the post-mortem fancied he discovered traces of former ulceration in the same vicinity. He ascribed these to a syphilitic or atheromatous degeneration; but as the existence of such a process has been questioned, we may suspend our judgment till further inquiry will have confirmed or disproved the fact, and meantime it must suffice for my present purpose to add, that he had been the subject of more than one attack of rheumatism.

(*To be continued.*)

ARTICLE X.—*English Practitioners and Practice at the End of the Seventeenth and Commencement of the Eighteenth Centuries, portrayed by themselves.* By JOHN MACPHERSON, M.D., Inspector-General of Hospitals (retired).

THE following notes are little more than extracts from English medical writers strung together. If they do not contain much that is new to those who are familiar with the past history of medicine in England, still to most of us much of what they say will be novel. These extracts are usually of a general nature, and deal only with the surface of the subjects. No attempt is made to go into the science of the questions discussed. Some of the subjects are the character of the physician and his relation to the apothecary, the gains of the physician, his reputation, his education, and manners, and the relation of patients to doctors in those days. Next come changes of medical opinion regarding the nature of disease; the chief English diseases; the contagion of scurvy and of consumption; fashions in medical practice; classification of doctors according to their mode of practice; fashions in remedies, their complexity, some particular ones; the use of mineral waters and of bathing; knowledge of climatology; some anticipations of modern scientific results.

The authors who furnish the extracts were consulted with reference to other subjects, and, except in so far as they all date from nearly the same period, have been taken almost at random. It may

save repetition to say a few words here about the writers who have been chiefly quoted. Clermont, a native of Lorraine, came over to England, practised for some years in Wales, and wrote a little book on the air and places and diseases of England in 1672. The restless Dr Gideon Harvey, a Fellow of the College of Physicians, published half-a-dozen more or less popular and controversial treatises from 1672 to 1702, making onslaughts on his professional brethren in his Conclave of Physicians and his Expectant Doctor. Dr Maynwaring was even more prolific, and produced between 1666 and 1696 numberless half popular works on scurvy, consumption, syphilis, preservation of health, etc. During the same period, Dr Charleton, President of the College of Physicians, produced a similar series of works of somewhat higher character. Carr, a Fellow of the College, published some Latin letters on popular subjects in 1692. Dr Baynard, another Fellow, wrote in 1702, in coarse vituperative style, a supplement to Sir John Floyer's treatise on cold bathing.

A certain Dr J. White, after being a surgeon in the navy for some years, practised for six years in Lisbon, and wrote on bleeding in fevers in 1712. Dr Cockburn, the head of the navy department, in large London practice, and Swift's physician, wrote a work on the diseases of sailors. He and White represent the views of some who had practised out of England, as Clermont does those of a foreigner.

Dr Strother wrote a treatise on fever in 1716, a work of very considerable discrimination. Sir Richard Blackmore, a successful physician and less successful poet of the period, wrote several works, apologizing for their being written in English; and his book on consumption has been freely quoted. It is scarcely necessary to explain who some well-known professional writers, who are occasionally cited, were—such as Willis, Morton, Cheyne. The non-professional writers made use of are not numerous. Burton, Fuller, Boyle, Sir W. Temple, are all well-known names. The author of a pamphlet, entitled Reflections upon Learning, published in 1708, one of the many pamphlets originating in Temple's comparison of ancient and modern learning, is once or twice quoted. In the notice of Radcliffe, an account of him, entitled "Some Memoirs of his Life," London, 1716, has been followed.

We have no intention of entering on the history of medical opinions, and merely wish to show what the writers of the day said, allowing them, as far as possible, to use their own language.

We may first inquire what the physician was, as painted by his own profession. Unfortunately, there was so much jealousy, that the picture can scarcely ever be considered a fair one Nevertheless, the remarks of that day, unfair as they were then, and as they are now, have a certain degree of application in all ages. Baynard writes—"A grave nod and a graceful grimace, with a charge of nose gunpowder, snuff 'twixt finger and thumb, or a spit after his pipe,

are signs of disapproving of a new invention. One doctor cries up crabs and lobsters, as if health comes from the sea in armour; t'other oranges and lemons. Dr Alkaly says vinegar and pepper is bad with roast-beef; and Dr Acid that pearl necklaces swell the glands of the throat, and will breed scurvy and king's evil. One asks his patients, Can you eat oysters? and t'other, Can you drink verjuice? All these foolish extremes are of ill consequence. But where a physician gallops over his patients, and rides post to be rich, the sick man is lost through his precipitation. This, however, is no detriment to the doctor, for while one dies, other patients spring up. But this galloper is a saint to the sharers, and those that go snips with them; apothecaries are villains of the first magnitude. Dr Wax, again, takes any impression, and always says as the dame and the nurse says, and becomes all things to all men that he may gain some money. The next is your nostrum-monger, one that sets up for miracle and mystery; but these things only pass upon weak minds, and people of little or no thought, or else they would never be gulled and led by dading-strings." In this Baynard is mistaken: the educated classes are still ready to submit to nostrum-mongers, and Clermont complained that the nobles called in quacks in the first instance.

If we form our judgement of the profession from the opinions of it expressed by its members, its position was low in the reign of Charles II. The great difficulties were considered to arise from the relative position of physicians and apothecaries. There were no druggists in those days—their part, that is, the actual supply of drugs, being in the hands of the grocers. The young physician could not make any way except through the help of the apothecaries, although, before this date, Fuller had remarked that it was the duty of a physician to overlook his apothecary. "All the families are under the direction of their pretended apothecary, who gives his physic till he fears the patient will die, and then appoints a physician, prepared to acquit him by taking the responsibility with the most quiet resignation. Many accidents have concurred to debauch and vitiate the profession, and corrupt it into quackery and charlatanism. The anxiety of the age to avoid a greater expense has led to the employment of the apothecaries, who can make no fresh observations or improvements; and the physician can make none, when he is called in after many injurious remedies. Physicians have been found to enter into combinations and confederacies with impunity to promote the reputation of many pretended high-priced medicines; and many of the famed physicians will not send their prescriptions but to their own purveyors." The general result has been that "it is the wonder of the more observing, that the vogued physicians do not answer any one of the characters of the formerly or lately valued practisers, in their learning, deportment, or fidelity to their patients. They are forced to manufacture themselves to the demand of the mode and fashion."

Another writer indulges in the same strain. He declares that "the patient's life and a physician's reputation cannot be secure in the now common way of apothecary practice: that the world has been blinded by a combination between the profession and the apothecaries to carry on the practice of physic for their mutual interest in the common, lazy, ignorant way, to the loss of thousands of lives, draining of purses, long languishing of many abused patients, and the vilifying of an exalted art." The great remedy of this writer was, that every physician should prepare his own medicines; and, after explaining this, he goes off to recommend certain secret panaceas of his own.

An attempt was made by the College of Physicians, at the commencement of the eighteenth century, to break down the entire monopoly of drugs by opening first a single dispensary, and then two—one in St Martin's Lane, Westminster, the other in St Peter's Alley, Cheapside—which were to supply medicines to the poor at cost price. This measure was strongly resisted by the apothecaries, and a bitter war was the result, the history of which is described in Garth's witty poem, The Dispensary. Although, eventually, the law decided in favour of the apothecaries, considerable improvement was effected by this move in the right direction; nevertheless the profession continued to afford scope for satire; for, a little later, Blackmore gives this picture of a leading physician—he was himself, besides being a man of cultivation and author of several meritorious poems, a prosperous practitioner. "Sometimes one leading lady that, in her own opinion, had acquired great knowledge in the art of physick, importunes the physician to prescribe her cordial powder, and another her corrective, and a third, a receipt of great value, long used in her family. Now the flexible practiser gratifies their desires, for the fear of these popular women punishing his disobedience by endeavouring to blast his credit, and by this means the doctor has the honour of being secretary of physick to the ladies. The most applauded physicians of the times, finding how much the credulous people can bear, grow arbitrary and uncontrolled; for though the natives of this kingdom are careful to circumscribe the limits of the power of the Throne, yet they have generally taken a fancy to settle on their supreme doctor a despotic and boundless authority; whence it comes to pass, that all the inferior sons of art are in a manner obliged to conform their practice to that of the great physician. This gentleman, as a dictator, invested with absolute power, establishes new schemes of practice, gives out the fashions of medicines, and changes them at pleasure with a capricious levity. For example, sometimes he appropriates a reputation of superior virtue, in the cure of chronic diseases, to the water of Tunbridge; then, by some slight caprice, transfers all their healing quality to The Bath, and then every one as he values his life must hasten thither. Soon after, from an odd turn of fancy, or a wanton ambition to show his power over easy people, all his patients

are to be immediately removed to Bristol, as the fount of health; and now Tunbridge Bath and the Spaw are little better than poison. If it happens that he takes it into his head to raise the credit of asses' milk, or of some other harmless remedy, all the pens of the faculty are on a sudden employed in promoting these remedies, for the inferior part of practisers think it wise servilely to follow his method."

Although there is a certain amount of truth in such satire, and there always will be from the nature of things, matters have greatly improved; the apothecary or general practitioner is now a man of higher attainments, and though we have fashions in practice and fashions in prescribing, we are not so much nowadays under the sway of one or more autocrats, although the game of follow-my-leader is not quite forgotten.

But unfavourable though the pictures of themselves by medical men, which we have just presented, are, there is no reason to think that the higher class of physicians did not stand well with the public.

Fuller said that unworthy pretenders to physic are rather foils than stains to the profession. Clermont tells us that there was no want of really learned physicians in England. Boyle had high respect for many physicians, talks well of several of them, and speaks of having paid a visit to one of the skilfulest and candidest physicians of the famous College of London. Sir W. Temple wrote that in all diseases of body or mind 'tis happy to have an able physician for a friend, and that in sickness recourse must be had to the best physicians that are in reach. "'Tis certain, however, that the study of physic is not achieved in any eminent degree, without very great advancement in other sciences; so that whatever the profession is, the professors have been generally very much esteemed upon that account as well as of their own art, as the most learned men of their ages; and thereby shared with the two other great professions in those advantages most commonly valued and most eagerly pursued; whereof the divines seem to have had the most honour, the lawyers the most money, and the physicians the most learning. I have known in my time at least five or six that, besides their general learning, were the greatest wits in the compass of my conversation. And whatever can be said of the uncertainty of their art or disagreement of its professors, they may, I believe, confidently undertake that when divines arrive at certainty in their schemes of divinity, or lawyers in those of law or politics or in those of civil government, the physician will do it likewise in the methods and practice of physic."

The medical men of those days were then as now fond of literature and of the arts. We find Swift saying that poor Charles Bernard, serjeant-surgeon, had left one of the best libraries in London; and Dr Mead's library and collections were of world-wide reputation. Among the most distinguished men of the day for learning

and accomplishments were Garth, Friend, and Mead. Arbuthnott was considered perhaps the most learned man of the age. They associated with all the wits. We hear of their constantly dining with Addison and Swift. Swift, though he saw a good deal of Friend, says he liked Arbuthnott ten times as well. Like all the wits of the day—in fact, like all gentlemen—they lived too freely, Like Radcliffe, they were over fond of the bottle; and there was some truth in the satire which accused doctors of being sometimes "in the merry pin" before they prescribed. Another evidence of the position which they held in society, is their occasionally getting into Parliament, which both Radcliffe and Friend did.

If the leading physicians at that date were really men of learning and position, it was only what might be expected from the education they had received. From the earliest times it was intended that physicians should be completely educated men. The University of Salerno, the oldest in Europe, required that they should have been employed for seven years in the study of medicine.

A scheme for the education of a physician, propounded in 1670, and afterwards acknowledged as his, by Gideon Harvey, is certainly complete enough, for it included the grand tour of Europe. The young student was to be grounded in Greek and Latin, in philosophy and in botany, at Oxford or Cambridge. He was next to proceed to Leyden to study anatomy. He should there attend the hospital twice a week and learn clinical medicine. After two years' study in Leyden, which Harvey considered to be far the first medical school in Europe, he was to journey to Paris. He was to visit the Hôtel Dieu and the Charité every day for a year, and follow the surgery of Janet and the chemistry of medicine by Barbet. Next he should go to the school of Montpellier, and have converse with all the first physicians of Europe. After this he was to resort to Padua, and observe the Italian method of curing disease by alterative broths without purging or bleeding, that climate seldom allowing the existence of plethora in the dry bodies of the natives. After six months he was to aspire to the degree of Doctor of Medicine in the Imperial University, to be obtained only after an exact, searching, and severe test. Next he should visit Bologna, and Rome with its three hospitals, remaining in Rome six months. Thence he was to go on to Naples and see the wonders of Pozzuoli. Thence he was to return by felucca to Leghorn, see Pisa and Lucca, and again proceed by felucca to Genoa. He was to journey by Milan, St Gothard, Lucerne, Baden in Switzerland, Strasbourg, and Heidelberg, studying men and manners, and visiting the universities. Then on to Mayence, visit Bacharach, the great entrepot for Rhine wines; go down the river to Coblenz and Cologne, and thence by land *via* Brussels, Ostend, and Calais to Dover.

After such protracted studies, and making the grand tour of Europe, surely our young physician would return qualified to take a good position in society and in the profession. It is amusing to

find the route from Genoa very much such as one might take in these days.

A general notion of the career of a successful physician may be got from the life of Radcliffe. He was the son of people of moderate means. He entered Oxford at the age of fifteen, became Bachelor at seventeen; then began to study medicine; took his Master's degree at twenty-two, and that of Bachelor of Physic at twenty-five. He then commenced practice in Oxford.

"At his first entrance on the stage of action he met with some obstacles from the apothecaries, and the two most eminent in Oxford of that calling did what they could to decry his method; but presently even they were forced to make interest with him to have his prescriptions on their files. Mr Luff, afterwards doctor and professor of physic to the university, and Mr Gibbons, now doctor, and a very eminent practitioner in and about London, did what in them lay to circumvent him with his patients, and depreciate him—the first saying the cures he performed were only guess-work; the latter, by way of sarcasm, that it was a pity his friends had not made a scholar of him. In answer to which Mr Radcliffe gave him the name of nurse, because of the slops, caudles, and diet-drinks he was always prescribing. Yet these, and all other obstacles that were laid in his way, but did add to his reputation, and the first year of his setting out for practice was crowned with success."

"In 1684, having by his practice in Oxford and the counties adjacent acquired great riches, he came to London, and, settling in Bow Street, Covent Garden, was extremely followed for his advice, and was brought into great request at the Court and elsewhere; so much the rather because Dr Lower, whose interest then began to decline amongst the chief nobility for his espousing Whig principles, grew daily more and more out of repute; and he had none but Dr Thomas Short, a Roman Catholic, to contend with for the prize of physic, which, indeed, the latter carried more on account of his religion, which was for that and for some years following prevailing at Court. But he dying in 1685, most of his practice devolved on the former. Dr Whistler indeed, and some others, as Sir Edward King, etc., came in for their share of patients in other parts of the town; yet, though the one was principal physician to the king, and the other in great esteem with some of the wealthiest merchants in the city, there was scarce any case worthy of a consultation but Dr Radcliffe was called to it, so that he had not been a year in town but he got more than twenty guineas per diem, as his apothecary, Mr Dandridge, who himself died worth £50,000 by his means, has often assured me."

"When the king offered him to be sworn in one of his majesty's physicians, with a salary of £200 per annum, he declined it, reckoning that he would be sent for on all urgent occasions, and that his reward would thus more than countervail a fixed salary. Nor was he out in his judgment, for the king, owing to his asthma, made

him be so often called on for assistance, that the doctor declared more than once to the writer of these memoirs, that, one year with another for the first eleven years of his reign, he cleared more than 600 guineas for his bare attendance on the king's person, exclusive of the great officers.

"Others, too, profited by his success. Dr Gibbons, who lived in his neighbourhood, gleaned after his practice; for the refuse of persons of all distinctions, whom Radcliffe could not see, made applica- to him, whereby he did not get less than £1000 per annum."

One other extract gives a notion of the fees charged in those days according to distance, and also an idea of the habits of the day.

"One Mr Bilton, a Turkey merchant, now living at Mile End, but then at Bow, near Stratford, was so ill of a complication of disorders, that his life was despaired of. Sir Richard Blackmore, Dr How, and several others of the principal physicians in and about London, had been in vain consulted, and abundance of fees had been given, to no manner of purpose, when he was advised to have recourse to Dr Radcliffe, notwitstanding the charge of his attendance would be very great, and nothing under a present of five guineas would be acceptable to him for a journey from Bloomsbury to Bow. The doctor accordingly came, and gave the sick man such satisfaction that he said that he should be glad to pay five guineas every day till his recovery; when Radcliffe replied that, though he had been very ill dealt with, if he would but follow a prescription he left with him, he would be able to take a dish of coffee with him at Garaway's that day fortnight"—which he was indeed able to do.

Dr Radcliffe was usually there at exchange time, and planted at a table with several apothecaries and surgeons that flocked about him. On one occasion he is mentioned as being at the Bull Head Tavern, Clare Market, where he was drinking with several persons of the first rank.

If we wished to present a picture of the disagreeable side of a profession which is especially subject to public criticism, we might point out how Swift says, that a gentleman was getting worse owing to the caprice of Radcliffe, who would only let him see his own surgeon, and tells us how Dr Friend was endeavouring to get old Dr Lawson, the physician-general, turned out, with a view to succeeding him himself.

The fashions in medicine have often been laughed at: we shall first glance in a popular way at the changes of opinion regarding the nature of diseases, and concerning some of the chief forms of disease prevalent at that time; and then at some of the modes of practice as they succeeded each other.

A little before this time, Jeremy Taylor had written that "very many principles in the art of physic are so uncertain, that after they have been believed for seven or eight ages, and that in them much of the practice hath been established, they come to be considered by a witty man, and others established in their stead, by

which men must practise, and by which three or four generations more of men must (as happeneth) live or die."

A friend of the profession, Sir W. Temple, writes thus:—"In the course of my life I have often pleased and entertained myself with observing the various and fantastical changes of the diseases complained of. When I was very young, nothing was so much feared or talked of as rickets among children, and consumption among young people of both sexes. After these the spleen came in play, and became a fresh disease; then the scurvy, which was the general complaint; and both were thought to appear in many guises. After these, and for a time, nothing was so much talked of as the ferment of the blood, which passed for the cause of all sorts of ailments, that neither physicians nor patients knew well what to make of it. And to all these succeeded vapours, which serve the same turn, and furnish occasion of complaint among persons whose bodies or minds ail something, but they know not what. Yet these employ our physicians perhaps more than other diseases, who are fain to humour such patients in their fancies of being ill, and to prescribe some remedies, for the fear of losing their practice to others that pretend more skill in finding out the causes of disease, or care in advising remedies."

As "the vapours" were much in vogue at this time, a word or two may be said of it. As regards the name, it was imagined that "hysteric affections were occasioned by the climbing up of vapours and steams into the brain, which retain that name among the people to this day." Carr said that there was a great increase of the vapours in his day, especially among ladies of the upper classes, and that if they were made to nurse against their will, they were sure to get attacks of vapours. White said that "neither sex suffered much from the hyppo and vapours till after the age of thirty; although it must be allowed that some young creature, born of hypochondriac parents, brought up in too hot an air, and afraid to let in the summer air for fear of spoiling her complexion, may get a fit of the vapours. After the age of thirty both sexes are invaded by this tyrant; they become burdens to themselves and plagues to the families in which they live. It would be a hard matter to determine which of the sexes has the greater number of sufferers by this distemper."

Radcliffe had no patience for this class of affections, and the Queen would not send for him, as she was afraid that he would only declare that she had a fit of the vapours. Blackmore had more consideration for hypochondriacal and hysteric distempers, and "for those who laboured from a series of painful affections, such as wakeful nights and aches of the head, besides many other imaginary distempers, which, however, are attended with real and unfeigned sufferings." The spleen, hysteria, dyspepsia, and hypochondriasis were all attributed to vapours arising from the viscera, which ascended and circulated in the lungs and head. They

were the subject of many treatises. One of the last was that of Cheyne on the English Malady or Spleen and Low Spirits.

But all through this period ran also one of the notions mentioned by Temple, that of "a scorbutic element, the whole idea of which," said Blackmore, "in spite of the explanation of authors, continues still very confused and obscure. Indeed, Dr Sydenham has remarked, that the symptoms which are commonly reputed scorbutic are often nothing but the principles of an undeveloped gout;" a doctrine which at the present day is brought in as a satisfactory explanation when a case is obscure. Latent gout is now usually assigned as a cause, and accepted willingly by patients.

Some idea of the immense importance attached to the scorbutic element may be obtained from hearing what Cheyne says on the subject. "There is scarce one chronic distemper in Great Britain but owes its origin to a scorbutic cachexia. To it we owe all the diseases that happen after the meridian of life, all diabetes, asthmas, consumptions of several kinds, many sorts of colic and diarrhœa, some kinds of gout and rheumatism, all palsies, various kinds of ulcers, and possibly the cancer itself; and most cutaneous foulnesses, weakly constitutions, and bad digestions, vapours, melancholy, and almost all nervous distempers. In a word, the scurvy is a kind of catholic distemper here in Great Britain, arising from conditional and general causes, from the customs of the people, and from the nature of the climate. The same reason is to be assigned for the frequency of self-murder here in England, especially beyond any other country. Notwithstanding the diffuseness and universality of this disease, so that scarce a single individual of the better sort is altogether free from it, yet I never once in my life saw it totally extirpated in those who had it to any degree. It always sprang up again in some symptom or other, and at last brought forth that grave one which put a final period to all their sufferings."

But if these views about scurvy are fantastical and groundless, scurvy was one of the chief real maladies of those days, although its amount had diminished greatly before Cheyne produced the above effusion.

The main diseases of those times were fevers, smallpox, measles, and bloody flux; and of constitutional diseases, syphilis and gout; and the three diseases which, besides low spirits, have passed under the name of the English ones, scurvy, consumption, and rickets. There is no occasion to say much about most of them. As to smallpox and measles, the chief peculiarity was that their spread was ascribed more to atmospheric influences than to personal contagion, and that the strange notion of the Arab school of medicine, that smallpox was the result of some contamination originated from the uterine system of the mother, had not yet been abandoned entirely. Radcliffe's treatment of it by letting in fresh air and using cooling remedies was a novelty. Bloody fluxes appear to have prevailed to a great extent, and especially in rural districts, with the malignity of tropical dysentery.

True scurvy, with all the severe symptoms, which one has only occasionally an opportunity of observing in sailors in these days, was a widely-spread disease. Not only sailors suffered, but a population which had bad drinking water, ate a good deal of salted meat, and which used few vegetables. Clermont, who was very familiar with the former disease in France, says that the ulcers of those suffering from scurvy reminded him of leprosy; and we learn from others that its purple discolorations were sometimes taken for plague spots. They had a curious etiology for the disease. It was attributed to the excessive use of sugar by children, of animal meat by adults, and to a moist climate. The English scurvy was considered milder than the Dutch. But the chief peculiarity, as representing the medical opinion of the age, was that it was generally reckoned contagious. It was at first considered to have been introduced from abroad by ships. It was one of the maladies which are universally communicated by the transportation of morbific miasms. Willis and others had not the slightest doubt that scurvy was both hereditary and contagious. Clermont said that whole families were ruined by its hereditary contagion. Harvey, who called scurvy the disease of London, thought children might be born with it, or acquire it from their mother's milk, or from the kisses of their parents, with whom they probably slept. He also had no doubt that it might be transferred from one person to another by miasms conveyed by the air. All this had been already affirmed by Charleton, and more especially the contagion which was got by using the same drinking vessel. He was also satisfied that the miasm exhaled from corpses, and had infected surgeons who had been engaged in their examination. The disease he also believed to be at times epidemic.

But if scurvy was considered both hereditary and contagious, much more so was consumption, the English tabes.

G. Harvey says that, next to plague, pox, and leprosy, consumption yields to none in point of contagion. As to its etiology, Clermont attributed a good deal to the climate, which made the English be perpetually catching cold, and which gave their voices a certain amount of hoarseness! Blackmore attributed a great deal to excessive spirit-drinking. Besides a hereditary origin, struma was often ascribed as the source. "The nature and properties of these two distempers are so much alike that the transition from the king's evil to a tabes or consumption is very easy and ordinary." But although they had no accurate knowledge of structural changes and of caseous degeneration in those days, they were perfectly aware that other affections of the lungs might induce consumption. Among various acute diseases which frequently degenerated into a true consumption, they counted peripneumonias, inflammations of the lungs, empyemas, pleurisies, and the sequelæ of measles and fevers.

No one entertained the slightest doubt regarding the contagious-

ness of consumption. The judicious Dr Morton said that he had often in his own practice known man and wife infected by each other; and G. Harvey thus expresses himself: "It is no rare observation here in England to see a fresh-coloured, lusty young man yoked to a consumptive female, and him soon after attending her to the grave. Moreover, nothing, we find, taints some lungs sooner than inspiring the breath of ulcerated or consumptive lungs. Many have fallen into consumption only by smelling the breath or spittle of consumptives; others by drinking after them; and, what is more, by wearing the clothes of consumptives, though two years after they were left off."

The belief in the contagiousness of phthisis, which has endured all along in Italy, is inclined to revive in this country. The extreme statements of Charleton concerning scurvy, and of Harvey on that disease and on consumption, show how cautious we should be in accepting the beliefs of men regarding the contagious nature of diseases. Those well-educated physicians had not the faintest doubt that phthisis, scurvy, and leprosy were all contagious.

Respecting king's evil itself a scorbutic taint seems to have been regarded as more important in leading to constitutional disturbance than a scrofulous one. We shall therefore merely remark, that there was much discussion as to why it should be that the touch of only the English and French sovereigns cured it. Nay, the French were inclined to think that it was only their own monarch who could do so effectually. It is an undoubted fact, that in the twenty-two years from 1660 to 1682, Charles II. touched 92,107 persons for it. Belief in the healing touch still lingers in some Highland districts.

With respect to rickets—the especially English disease—Clermont says that you may see everywhere big-headed children, with prominent chests, curvature of the spine, ill put-together joints, turgid abdomens, looking emaciated and languid, who were suffering from it.

The peculiarity of this disease is, that though it must in reality have been old, it was regarded as new in Europe. The rickets appeared in England about the year 1620. It was first known in the counties of Dorset and Somerset. In the times of Charles I. it was almost epidemical, few families escaping it. After being almost worn out, it again came into play about the beginning of the eighteenth century. It was then attributed by Floyer, the advocate of cold water, to disuse of the trine immersion; others, more reasonably, attributed it to bad nurses and bad management of children. The fact that all the popular, as well as many of the more scientific, writers wrote treatises on scurvy and consumption—Maynwaring, Harvey, Charleton, Blackmore, as well as Willis and Morton—shows how all-pervading these diseases were then considered to be.

(*To be continued.*)

Part Second.

REVIEWS.

Quain's Elements of Anatomy. Eighth Edition. Edited by WILLIAM SHARPEY, M.D., LL.D., F.R.S. L. and E., Emeritus Professor of Anatomy and Physiology in University College, London; ALLEN THOMSON, M.D., LL.D., F.R.S. L. and E., Professor of Anatomy in the University of Glasgow; and EDWARD ALBERT SCHÄFER, Assistant Professor of Physiology in University College, London. In two volumes. London: Longmans, Green, and Co: 1876.

THE somewhat conflicting requirements to be fulfilled in writing a book containing the elements of anatomy for general use make the work one of no ordinary difficulty. Indeed, it is a work that can only be successfully undertaken by men possessing the breadth of view given by a wide range of knowledge, together with the ability to place facts and deductions vividly and exactly before the reader, and an intimate acquaintance with the various wants of the persons to be instructed. Dogmatic statements and diagramatic drawings are needed to arrest the attention and impress the memory of the beginner, while facts must be presented in such an aspect as may show their mutual connexion and bearings in the science of anatomy. The great majority of readers look at anatomy merely in relation to medicine and surgery, and for these careful provision is demanded. Another important class ask for such a *conspectus* of the science as may exhibit its present position, and may lead the student to that stage at which he emerges *ex statu pupillare* and betakes himself to original monographs or the study of comparative anatomy. For nearly half a century, Quain's Anatomy has maintained a high place, and now that the eighth edition appears, after a lapse of nine years from the issue of the last, we are glad to find that it is the best and most complete text-book of anatomy in the English language, and one of which British anatomists may be proud. The recent character of much of the information is a remarkable feature. We were not a little astonished to find digests of memoirs which only appeared when part at least of the book must have been in the press. This is doubtless due to the subdivision of the work among so many able editors. The alterations in this edition begin with the titlepage, where the name of Dr Cleland of Galway is replaced by that of Mr Schäfer of University College. Not only has the book been revised in the most elaborate way, and new matter introduced to bring it up to the existing state of anatomical science, but the distribution of the matter between the two volumes has been altered.

The first now contains the Descriptive Anatomy of the Bones, Joints, Muscles, Vessels, and Nerves; and it also includes the substance of the chapter on Surgical Anatomy which appeared in former editions, but which is now incorporated with the account of the muscles and vessels. The whole of this volume has been edited by Dr Thomson, in association with Mr D. N. Knox, Demonstrator of Anatomy in the University of Glasgow, and assisted by Mr H. Clarke in the description of the Bloodvessels, and by Dr Gowers in that of the Cranial Nerves. There is considerable change and some amplification in the account of the Bones and Muscles, but we must confess to considerable disappointment with the chapter on the Bones. References to Morphology and Homology are banished to separate sections, where the views of Flower, Parker, Huxley, Goodsir, Owen, Gegenbaur, etc., are cleverly stated and pitted against each other, while the editor carefully abstains from committing himself to anything. Surely at this date it might be admitted that the innominate bone consists of three parts, each having the same fundamental form of a three-sided prismatic rod; and would not a description founded upon such morphological considerations be endowed with ease and interest in the eyes of the learner? Such excess of caution has rendered the description of some of the most interesting bones only a degree better than those dreary catalogues of commonplaces, which in some other works on anatomy excite the disgust of the student.

A very serious omission is the want of any mention of the internal structure and arrangement of the cancellated tissue of the various bones—a subject which is so important, from a practical point of view, as determining the lines of greatest or least resistance to force. The illustrations to this chapter are the old flat woodcuts, which may possibly adorn the pages, but can hardly serve any other purpose. Notwithstanding their abundance, the beginner must have recourse to a teacher at every step, or possess himself of some such work as Holden's Osteology.

In the chapter on the Muscles, varieties have been more fully noticed than formerly, and there are some interesting sections on the morphology of muscles, founded on the writings of Huxley, Mivart, Rolleston, Humphrey, etc. The account of the cranial nerves has profited by Dr Gower's revision. The bloodvessels and nerves are described in the first volume apart from the heart and brain, for which the second volume must be consulted—an arrangement which disturbs our sense of the fitness of things, and reminds us of the decapitated St Vincent walking about with his head under his arm. After deducting the table of confessed *errata*, it is consoling for ordinary folk to observe, that one with such a reputation for caution and exactitude as Dr Thomson, and possessing the aid of sharp-eyed assistants, fails to purge the book of printer's errors, and may even occasionally indulge in such dark sentences as the following:—"The inner lateral fibres arise from the line running from the

anterior inter-trochanteric line in front of the small trochanter to join the inner line leading to the linea aspera, from the lower half of that inner line, from the inner lip of the linea aspera, and from the internal inter-muscular septum. The line of origin of the outer lateral fibres runs from the anterior inter-trochanteric line obliquely across the front of, and down the outer surface of the shaft of the femur, immediately in front of, and closely connected with the origin of the vastus externus."

The second volume opens with Dr Sharpey's classic chapter on General Anatomy, extending to 238 pages. This was published separately eighteen months ago, and therefore requires only brief notice now. We may refer specially to the description of the structure of bone and serous membrane, and the origin of the lymphatics, as containing striking novelties, for which we are indebted to Klein, Recklinghausen, etc. The illustrations are excellent. The description of the arrangement of the muscular fibres of the heart is founded on an entirely fresh investigation, undertaken with the co-operation of Mr F. J. Davies, of University College, and differs altogether from that of Pettigrew. Of the chapters on the anatomy of the other thoracic, abdominal, and pelvic organs, time fails us to say more than that they are all improved, especially in the microscopic anatomy. The researches of Dr James Foulis on the Development of the Ova and Structure of the Ovary, published in the *Edinburgh Philosophical Transactions* for 1875, have been freely abstracted in the account of the ovaries and development. The account of the intimate structure of the brain and spinal cord has undergone considerable alteration at the hands of Dr W. R. Gowers, to bring it into accordance with modern views; and the exterior of the cerebrum has been described in the modern way, following Gratiolet. We are both surprised and disappointed to find no information given which might help in localizing the position of the fissures and convolutions upon the surface of the skull. Even had the editors objected to the trouble of the trifling investigation needed to gain information so important, they might have availed themselves of the papers by Turner on this subject, in the *Journal of Anatomy and Physiology* for 1874 and 1875. Meynert's terminology is briefly described in an appendix by itself. The chapters on the Organs of the Senses are capital pieces of description, thoroughly revised and splendidly illustrated. This volume concludes with a new feature, in the shape of a chapter by Dr Allen Thomson on Embryology or Development of the Fœtus and its Organs, including the formation of the Membranes and Placenta. It occupies 154 pages, and not only brings together into one place the special history of the development of the several organs of the body, which in previous editions was distributed throughout the work, but contains much additional new matter. Coming from such a competent pen as that of Dr Thomson, dealing with a favourite subject, we are not

surprised to find that this is a remarkably clear and instructive exposition. It contains the substance of the most recent publications, and we would draw special attention to the account of the placenta and uterine glands. It only remains for us to say that each volume is furnished with a very copious index as well as a table of contents, and that the printing and "get up" of the book are such as they ought to be.

Aids to Anatomy. By GEORGE BROWN, M.R.C.S. and L.S.A., late Demonstrator of Anatomy at Westminster Hospital Medical School. Pp. 64. London: Baillière, Tindall, and Cox. Edinburgh: Maclachlan and Stewart: 1876.

THIS little book has been found useful by students, and on this account deserves a word of praise. It consists largely of lists compiled from the text-books, *e.g.*, list of structures underneath the gluteus maximus.

Royle's Manual of Materia Medica and Therapeutics. By JOHN HARLEY, M.D., etc. Sixth Edition. London: J. and A. Churchill: 1876.

THIS edition of Royle's Materia Medica, under the able editorship of Dr Harley, is destined to take a good position among the text-books on this branch of medical science. It has many things to recommend it. It is generally well arranged. The descriptions and chemical composition of the various medicines are on the whole correctly given; whilst the actions and uses of the various articles used in medicine are clearly and succinctly stated. The book, however, is by no means without defects. We affirm it is a mistake in 1876 to give the old chemical notation in addition to the new formulæ, inasmuch as this tends to perplex, for no teacher of chemistry now uses the old notation, and few students understand it. It is a mistake also to suppose that text-books on materia medica should relate all the minutiæ of the Pharmacopœia, in regard to the preparation of the various medicines, inasmuch as it is impossible and very undesirable that any student should attempt to commit them to memory. It is far better to recommend students to provide themselves with the Pharmacopœia, and in all cases when preparing drugs to do so according to the directions given in the Pharmacopœia, and never trust to any text-book on materia medica, however excellent. This manual would have been more useful to students had it followed the usual arrangement of the vegetable kingdom, by beginning with the Thalamifloræ, and ending with the Thallogenæ. Dr Harley does not state what

authority he has followed in his arrangement of the natural orders, but we fear that in several instances it would be objected to by our highest authorities on botany. At page 683 Dr Harley, in his description of jaborandi, mistakes throughout leaflets for leaves. It is, however, an excellent manual, and we wish it a wide circulation.

Syllabus of Materia Medica, etc., etc. Third Edition. By ALEXANDER HARVEY, M.D., Professor of Materia Medica in the University of Aberdeeen; and ALEXANDER DYCE DAVIDSON, M.D., etc., etc. London: H. K. Lewis: 1876.

WE are glad to see that this excellent "Syllabus" has, within the space of three years, reached a third edition. This fact shows that the work is valued alike by practitioners and students. The introduction contains some valuable remarks regarding the teaching of materia medica. The following remarks regarding the recognition of specimens by the students are worthy of careful perusal:—"Students must have opportunities given them of again and again handling and inspecting specimens. The requisite knowledge is not to be got by looking at specimens on the professor's table in the lecture-room, at the distance of some feet or yards, nor yet by walking the professor's museum. It can be gained only by placing specimens on tables which students can comfortably sit at—text-book, or still better, Pharmacopœia in hand, and carefully compare the specimens with the descriptions of them there given—tasting and smelling, or otherwise making themselves familiar with each article."

The Veterinary Journal and Annals of Comparative Pathology. Edited by G. FLEMING, F.R.G.S., Veterinary Surgeon Royal Engineers. London: Baillière, Tindall, and Cox: 1876.

WE recently had occasion to speak in terms of commendation of this periodical, and we are glad to find that on the whole it keeps up the high standard claimed for it. As an honest attempt to place veterinary medicine on a truly scientific basis, and to elevate it above the mere empirical science *yclept* "farriery," the efforts of the editor and contributors of the "Journal" are to be again commended. The contents of the present number include papers by Professor Walley of Edinburgh on "Pleuro-Pneumonia Zymotica, its Characteristics and Pathological Anatomy;" by Mr Robertson, of Kelso, on "Sheep Disease in Oregon;" by Mr Dyer, of Limerick, on "Glanders and Farcy;" and on the "Transmission of Ringworm from Horse to Man," apparently by the Editor. Professor Walley's paper is a continuation of a previous instalment;

and so far as we are able to judge, Mr Walley exhibits a close and intimate knowledge of this curious form of pleuro-pneumonia. He argues that the zymotic form of the disorder is a specific and distinct affection. It will form an interesting subject for future research, to investigate the relations of this form of pleuro-pneumonia to the lymphatic degeneration, which is apparently so marked a feature in its course and symptomatology.

The paper on "Sheep Disease in Oregon" advances some practical advice from a stock-farmer on the treatment of anæmia in the sheep, and on the presence of the "hoose-worm" or *Strongylus filaria* or *bronchialis*, the latter causing anæmic symptoms and other distressing conditions. The treatment of anæmia consisted in securing a change of dietary—a mode of cure also seen to be effectual in the anæmia of the human subject—whilst the *strongyli* were treated with turpentine and salt, along with strict attention to cleanliness. The larvæ of the bot-fly or *Œstri ovis*, infesting the nasal passages and frontal sinuses, were treated by injecting turpentine.

The paper on "Glanders and Farcy" is interesting as a record of personal experience. Glanders is easily communicated by very slight inoculation, but not apparently through the breath—although the latter statement may be received *cum grano salis*, as one or two exceptional cases of infection, apparently from proximity, have, we believe, been reported. A note on the advisability of "Professional Consultations" in veterinary medicine, is worth the attention of the profession. The practice of consultation with brother-professionals is characteristic of a cultivated science, and of a liberal-mindedness which many veterinarians have yet to learn. Still we hope the day is not far distant when the advice of a neighbour practitioner may be sought for in a friendly way, and when the practice—too often witnessed—of decrying another's opinion and work, will be left to the "farrier" and "smith" alone.

The apparently poisonous action of buckwheat (*Fagopyrum esculentum*) forms the subject of a paper by Mr Martin, of Rochester. This plant seems to cause cerebral symptoms, ulceration of the ears and face, discharge from the nose, and other effects. The occurrence and treatment of pleuro-pneumonia in pigs, is noticed by Mr Coleman, of Ontario; and the "Transmission of Ringworm from Horse to Man," is illustrated by the example of a groom who attended to the horse of a lieutenant of the Royal Engineers. This man rapidly developed a large patch of *Tinea* on the right arm; the horse being affected on the croup and quarter with unmistakable ringworm. Stockholm tar is highly recommended for the cure of Tinea in the horse.

As in our previous review, we may recommend the editorial *résumé* of veterinary science. The editor discourses on the necessity for the instruction of medical men in comparative pathology, but we cannot agree that a medical man should study the

latter branch so fully as therein recommended. Let veterinarians themselves improve the study, and medical men will be quite content to learn of and prove them when occasion requires.

Max Müller's paper on the "Horse and its Ribs," in illustration of a passage in the Rig-Veda, which speaks of horses having only thirty-four ribs, is reprinted from the "Academy," and will be perused with interest; whilst Tyndall's late remarks on "Germs" are also cited. Veterinarians are therefore presented with the means of keeping abreast with the growing opinions and advancing tenets of the day.

The number concludes with a selection of "Reviews" of books, and notices of the proceedings of societies—among the latter, the Obstetrical Society of London appearing, with a paper by Mr Jonathan Hutchinson on "Certain Causes of Death in Ewes, during and after Parturition." Some correspondence on the grievance of unlicensed practitioners, shows that the profession is partly awake to the desirability of securing legal registration for qualified veterinarians. We re-echo the wish, that the day is not far distant when an ignorant farrier shall no longer be allowed to perform tortures on horses and cattle, quite equal to anything that the most rabid anti-vivisectionist ever dreamt of. But equally is it to be deplored, we think, that even in the veterinary profession there are apparently practitioners who think fit to treat a parturient mare in the manner reported in the "Journal," in the notice of a legal trial for malpractice. We demur to the title of "Questionable Verdict," which the editor has appended to this notice. For, to the credit of the veterinary art, there are surely milder and more effective means of relieving a mare of a foal, than by causing fourteen men to pull with an iron hook and a plough brace at the body of a foal.

The Nurse's Companion: A Manual of General and Monthly Nursing. By CHARLES J. CULLINGWORTH, Surgeon of St Mary's Hospital, Manchester. London: J. and A. Churchill: 1876.

TOUCHING upon ground that ought to make the volume before us a most useful one to nurses, it fails in its purpose, by the meagre, scanty style in which the author has thrown together much useful information. If the nurse depends upon this "Companion" as her guide, she will, we fear, prove but a poorly equipped handmaid for the physician or surgeon. We have yet to see the text-book for nurses, which fully defines the "scope of their duties," or which "enters sufficiently into detail, to be helpful to them in their daily work." The obstetric teaching is rather better, because fuller and more in detail than the rest.

Medicinal Plants: Being Descriptions, with Original Figures, of the Principal Plants employed in Medicine; and an Account of their Properties and Uses. By ROBERT BENTLEY, F.L.S., etc., and HENRY TRIMEN, M.B., etc. Parts IV.–VIII. London: J. and A. Churchill: 1876.

WE had occasion to notice favourably the first three parts of this work in a previous number of this Journal. The parts now before us fully maintain the excellence of the first three parts. The plates are beautiful, the descriptions of the plants are in general very accurate, and the actions and uses of the various medicines derived from them correctly given. When completed, Bentley and Trimen's work on "Medicinal Plants" will form a valuable contribution to materia medica. We would again suggest that the "description of plate" should be placed beside the plate, and not after the description of the plant, as at present. We wish the work a wide circulation.

Essay on the Use of the Spleen, with an Episode of the Spleen's Marriage: A Physiological Love-Story. By PATRICK BLACK, M.D., Physician to St Bartholomew's and Christ's Hospitals. London: Smith, Elder, and Co.: 1876. Pp. 1–44.

THIS is a clever *brochure* on that mysterious organ the spleen. The functions of this organ are still far from being clearly understood, and probably no organ of the body has had so many wild theories referred to it. Some have supposed that it acts as a diverticulum to relieve excessive congestion of the stomach; others that it serves as a kind of packing to stuff up the vacant space in the abdominal cavity; one physiologist gravely asserted that it is a counterweight to the liver, and thus assists in maintaining the sense of equilibrium (*pace* the semicircular canals, presently the favourites in this matter); another propounded the view that by its influx of warm arterial blood it heats the great end of the stomach, and thus acts as a kind of patent digestive apparatus; a few illogical sceptics have stated that it is of no use at all, as the animal from which it had been removed did not appear to suffer from its absence; more recently it has been supposed to be the birthplace of blood-corpuscles; while others contend that, on the contrary, it breaks them down and "elaborates the liquor sanguinis;" and now Dr Black, ridiculing, as he well may, most of these theories, brings forward another, namely, that the blood of the splenic vein is a *diluent* for the rich blood of the portal vein, so as to fit it "by dilution for the refining operations of the liver." Now, no doubt, the blood of the spleen is not returned direct to the vena cava, but to the portal vein, and thus it has "a special relation to the portal system." To say,

however, that the blood of the splenic vein is simply for diluting the rich blood of the portal vein, is an assertion which would require to be supported by facts, of which we find none in Dr Black's essay, except the anatomical one just alluded to. The conclusion of Dr Black's work is the most amusing part of it, where he discusses the psychological position of the spleen. This organ has evidently been a puzzle to mankind from the time it was first discovered; and as the ancients could not attribute any purely physiological use to it, they associated with it the words "anger," "passion," and even "mirth." It is not too much to say that, by pursuing to the end some of the views of modern philosophers as to the relations of the nervous system to the body, the opinion of the ancients may even now obtain support! Why should not a man get into a passion or be fretful when his portal system is congested after a heavy dinner? or when his "bile," according to Dr Black, has not been diluted enough? Such a mal-arrangement, communicated to *head*-quarters, is enough to make any well-constituted man angry! From these data, a most elaborate theory might be constructed as to the influence of the spleen on the nervous system, which, at all events, would be just as good as many of those above noticed!

On the so-called Trophic Action of the Posterior Columns of the Spinal Cord. By M. M. Gouty. Gazette Médicale de Paris, 27 Mai 1876.

In this interesting communication, founded on results obtained by numerous experiments, M. Gouty arrives at the conclusion that section of the posterior columns of the spinal cord does not produce any appreciable influence upon the nutrition of corresponding parts; and that in those few cases in which alterations of cellular or osseous tissue were observed, the effects were probably explained by lesion of the ganglia on the roots of the spinal nerves. Thus M. Gouty bears out the conjectures of John Reid, and the experimental illustrations of Dr Waller.

Practical Physiology: Being a School Manual of Health, for the Use of Classes and General Reading. By Edwin Lankester, M.D., LL.D., F.R.S. Sixth Edition. London: Hardwicke and Bogue: 1876. Pp. 1-152.

This is the sixth edition of the late Dr Lankester's Manual, which may be regarded as one of the most successful of the numerous small works that have recently appeared on physiology. It contains

a large amount of information, conveyed in clear language; it is well illustrated by diagrams gathered from many sources; and it evidently has been written with a full recognition of those practical advantages which a knowledge of physiology would secure to the mass of the people. Such works will soon diffuse such information regarding general physiology as ought to be intelligently known by every well-educated person.

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION LV.—MEETING IX.

Wednesday, 5th July.—Dr GILLESPIE, *President, in the Chair.*

I. *Dr Foulis* showed—(1.) A SOLID SARCOMATOUS TUMOUR OF THE OVARY, removed lately by Dr Keith from a lady in London. The tumour had been of very slow growth, and was supposed by all who had seen her to be a uterine fibroid. A suspicion of its real nature led Dr Keith to examine microscopically the ascitic fluid which surrounded the tumour in very small quantity. This was found to contain many small masses of proliferating epithelial cells, which Dr Foulis had, on various occasions, already described to the Society. As the tumour had lately grown rapidly, and was evidently killing the patient, Dr Keith advised removal. The operation was one of great difficulty, owing to adhesion to the intestine, omentum, and mesentery, and lasted for two hours. There was profuse hæmorrhage from the adhesions. The pedicle was long and healthy. No other organ in the abdomen was affected, and the adhesions were only of a vascular nature. The case was interesting, as showing how large a sarcoma might grow without infecting neighbouring parts. The tumour itself weighed 16½ pounds, and was of an extremely rare form.

(2.) TWO TEETH AND A PIECE OF BONE, apparently part of a jawbone, removed by Dr Keith from the inside of an ovarian cyst.

II. *Mr Chiene* then read a paper on A NEW SYSTEM OF DRAINAGE OF WOUNDS, which will appear in an early number.

The *President* said the Society would be glad to hear any remarks on Mr Chiene's interesting paper.

Mr Annandale, as one interested in the progress of antiseptic surgery, thanked Mr Chiene for his contribution. He wished, however, that he had given a different title to his paper. Thus,

in the title, there was no mention of its being only applicable to antiseptic wounds; and he had therefore come to-night, expecting to hear about a system of drainage applicable to all wounds. Then, in the second place, he rather gathered from Mr Chiene's remarks and the account of the cases, that the use of the catgut was not so much as a drain, but that it promoted the absorption of fluids. He would further like to know, how much fluid had been effused in the cases? The ankle-joint case was not dressed for four days, and therefore one might ask, what was there to drain? Then the system was inapplicable to suppurating wounds. His remarks on these two points might be wrong, but this was due to the misleading nature of the title. But the one case where putrefaction and suppuration occurred showed that the catgut acted as a foreign body in the case of putrid wounds. The subject of catgut in wounds was a new one, and they were indebted to Mr Chiene for working at it. From his experience of antiseptics he did not think it would answer. The amount of catgut used would be expensive; and, besides, the drainage-tube he believed to be better when special drainage was required. Another point he had already referred to was, whether it was possible to promote absorption of the serous effusions by means of the catgut drain, instead of allowing it to soak away. If it turned out that fluid could in this way be absorbed, so that, as Mr Chiene had said, they need not look at a wound until it had healed, then this new system would be most valuable. As yet he was a sceptic; but Mr Chiene, as an inventor, must be prepared to meet with difficulties and opposition. These, however, he believed Mr Chiene's practical talent would overcome in the right way.

Dr John Duncan had great satisfaction in seeing the system of drainage in general recognised as an important addition to surgical armature. In 1863 his friend Dr Steel and himself saw, in Paris, Chassaignac use drainage in everything from caries to whitlow. We were so interested in it that we sent specimens to Mr Syme and Mr Spence. It was not, however, received with the *éclat* it merited. In his thesis for the Fellowship of the Royal College of Surgeons, he again advocated the system of drainage; and now he was glad to find it so universally believed in. It had, however, been made much more efficient and useful by means of antiseptics. When Mr Chiene said to him a short time ago, that he had been trying this new plan of drainage, it struck him that it was an improvement. A drain that was absorbable was better than one that required to be removed, as an indiarubber tube did, because the mechanical manipulation of removal was an irritation in itself; thinking therefore, *a priori*, that this was an improvement, he tried it in two cases, one of enchondroma of the parotid, the other of fatty tumour in the posterior triangle of the neck. Both operations were conducted antiseptically and with success in their management. In these he tied the vessels with catgut, and,

instead of cutting the ends short, brought them out at the line of incision. He did not know whether this method was Mr Chiene's or his own. In the first case three vessels were tied; in the second, six; and the drain in the former consisted therefore of six threads; in the latter, of twelve. Both healed with almost no discharge. From his using catgut stitches he could really say that his fingers never touched the wound during the time between the operation and the healing. Mr Chiene's catgut drain could thus be used with perfect safety; and as the amount of discharge would depend on the vascularity of the wound, there would be, in the consequent number of ligatures used, an efficient drain. He believed that the catgut drain would prove exceedingly useful.

The *President* wished to narrate a case like Dr Duncan's, not, however, treated antiseptically, although it would compare favourably with any such. In this he did not at all mean to say anything against antiseptics. The patient was a boy, with a bunch of enlarged glands under the jaw, extending from the angle to the symphysis. They had been there for several months, and were disfiguring him very much. He accordingly removed them exactly a week ago by an incision, three inches long, below the angle of the jaw. One moderately large vessel required to be tied, and some other small ones he twisted. He tied the vessel with some chromic-acid catgut Mr Chiene had given him, and stitched up the wound with the same. As the vessel so tied was near the surface, he brought the two ends of the ligature out at the end of the incision. He had removed the stitches, but the ligature was still in the wound, feeling as hard as iron wire, and likely to remain there, Mr Chiene informed him, for three weeks. The boy was quite well and playing about, the wound having healed by first intention. The glands, when cut into, though chiefly solid, were found to contain small deposits of pus, and it was therefore better to excise them than have troublesome long-continued suppuration. Thus, without antiseptics, and using chromic-acid catgut, he had got a most satisfactory result.

Mr Chiene thanked the members for their remarks, and especially the President for his interesting case. He had, however, given him the catgut for stitches and not for ligature. The ligature in the boy's neck would probably come away by ulceration. He also thanked Dr Duncan for his cases. In regard to Mr Annandale's objection, he was ready to grant that he might have added the term "recent" to his title, and this would have covered the objection. The amount of serous discharge in the cases treated was as great as usual, and required large dressings. In regard to the expense of the catgut drain, 108 yards of catgut cost only a shilling, and surely a pennyworth for each case was not extravagant. He really could say nothing about the catgut absorbing fluids, as he did not understand what Mr Annandale meant.

If it soaked up the fluids, they were still there; and if not, they must still drain away. He was glad Mr Annandale had objected, as further experiments would be made. If they succeeded, well and good; but if not, then the catgut drain must go into the background, like a great many other things, and something else come in its place.

III. *Dr Hunter* then read a paper on PUERPERAL FEVER AND SEPTICÆMIA, their relation and probable identity, with cases, which will appear in a future number.

The *President* felt sure the Society was indebted to Dr Hunter for his interesting paper.

Professor Simpson thought the Society, and indeed the whole profession, were indebted to Dr Hunter for his valuable paper It certainly required a great deal of courage to bring forward the series of disastrous cases so admirably detailed. The question now was, were we to retain the term puerperal fever as distinctive of a single variety out of the pretty extensive group of fevers in women, which were all puerperal, because they occurred in the puerperal state. Thus, typhoid fever or smallpox or any of the zymotic fevers might lay hold of a puerperal woman, and, owing to her peculiar condition, the fever in her was apt to become very intense, and at times so rapidly fatal that there was no time for the manifestation of characteristic eruptions. This was more particularly the case in women who had never before been exposed to their infection, to whom even the mildest of the zymotic fevers was likely to be deadly. In one case, of a lady who had been sedulously guarded from infantile diseases, an attack of measles in her thirteenth confinement proved fatal in a few days. Again, the erysipelatous poison coming in contact with the vaginal or other canals of a parturient female, caused symptoms similar to those arising after a surgical operation in a patient exposed whilst the wound was fresh to the same poison. Then there was the group of cases so well brought forward by Dr Hunter, where the surgeon got impregnated with a poison, which would give a surgical patient a fever, with local manifestations, from the introduction of poison into a wound. This, as taught by the late Sir James Simpson, should be held as puerperal fever when the patient was a puerperal woman. There were two things which would have added to the value of Dr Hunter's communication, but which could not resonably have been required from him, viz., a post-mortem examination of the woman who had died, and also of the fatal surgical case. This would, no doubt, have shown lymphatic inflammation, thrombosis, and metastatic inflammations. He had collected in the dissecting-rooms at Vienna, the results of post-mortems of patients dying after puerperal fever and after surgical operations. The results in both classes of cases were str kingly similar, especially when the surgical operation had been on

the abdomen. It would have been interesting further to have known the health of the puerperal women in the district, at the time of Dr Hunter's fatal cases, as it would have added to the value of his paper. He had undoubtedly carried a morbific agent, and it was therefore important to watch the kind of source from which such an agent might arise, and it might come from less striking sources than the case to which Dr Hunter had traced his empoisonment. Thus, in a case of his own, it was traced to the sore thumb of the nurse; and in a second instance, it was also traced to the nurse, who had been dressing an old ulcer on her leg. Then, again, the obstetrician might get the poison from the fetid lochial discharge of a patient already confined, although it was doing the woman herself no harm, for the simple but very sufficient reason that ere the discharge had become dangerous, the lacerations in her own genital canals had begun to granulate, or that there had been no wound surface produced during her labour. Such injuries were far more likely to be found in primiparæ than in multiparæ, and in this connection it was interesting to observe that in the series of cases where Dr Hunter attended women in labour who escaped, the table showed these to be all multiparous, and the first in whom the mischief again began was a primipara. He felt much interested in Dr Hunter's cases, and was sure they all felt grateful to him for his very able communication.

Dr A. Macdonald wished simply to endorse Professor Simpson's remarks. The contribution was valuable, and one much needed in science. There was always a certain amount of reluctance in furnishing such cases; and although the practitioner was honoured by his brethren, yet the popular amount of credit was not in proportion to his deserts. No member would now deny the view of puerperal fever advocated this evening. The only question was the bearing of antiseptic measures on these cases; whether, by the diligent use of antiseptic agents, such organic fever-poisons could be destroyed. He would fain believe such was the case. It might be true, as Dr Hunter had said, that the hand epidermis might be so impregnated—that so much poison might lurk in its deeper layers as to cause puerperal septicæmia, even after a three weeks' holiday on the part of the medical attendant. He did not, however, think that their present knowledge warranted this. Probably if the cases were examined, some hidden relationship between them and other causes might be traced, different from what Dr Hunter had shown. Then they knew that carbolic acid caused desquamation of the cuticle; and most of them would demur to the case of pyæmia where the pulmonary mucous membrane was supposed to be the absorbing medium. It was more probably a scratch in some accessible part. These were the doubts that occurred to him; and if it were true that these poisonous influences, bacteria, etc., were so subtle that no carbolic acid could kill them, then no obstetrician nor surgeon could, after a stinking wound, go

to cases for weeks. Dr Hunter certainly deserved thanks for his interesting paper.

Dr Smart thought that not too much could be said on this important subject. The paper came up opportunely, as the deferred discussion in the London Obstetrical Society gave them the start and lead in the matter. He was interested and pleased in the paper and remarks, on account of the unanimity which had prevailed, and he hoped the professional minds would be educated in this matter. Dr Hunter was not limited to the pulmonary mucous membrane for the absorption of poisons, as the eye is often a habitat for such. Then as to Dr Hunter's doubts on the source of the poison, he should remember that puerperal women are so susceptible, that an infinitesimal dose might do all the mischief. Many years ago, in a debate at the Royal Medical Society, he had ventured to generalize the whole question into one of septicæmia. As physician and pathologist in one of the largest obstetrical hospitals in Britain, he had ample proof that puerperal fever was septicæmia. He indeed considered it dangerous for an accoucheur or medical man in practice to attend at a post-mortem. As to the question of puerperal fever existing as an epidemic, if they admitted it was a septic disease, then they got at the question at once. There was no epidemic of puerperal fever apart from direct septic influences. All knew how easy it was to produce an epidemic or quasi-epidemic. Medical men should therefore be very careful in avoiding all places where such danger could be.

Dr Hunter did not, at such a late hour, wish to enter into any detailed reply. He thanked the members for their favourable and lenient criticism. In regard to what Professor Simpson suggested about post-mortem examinations of the fatal cases, he thought the Society would agree with him that he would not have been justified in making them. Indeed, when lately called on by the Procurator-Fiscal to make such an examination, he had declined doing so. He was glad to hear Dr Macdonald's remarks, and only regretted that time prevented him replying more fully.

OBSTETRICAL SOCIETY OF EDINBURGH.

SESSION XXXV.—MEETING X.

Wednesday, 10th May.—Professor SIMPSON, *President, in the Chair.*

I. *Professor Simpson* exhibited a PARTIALLY DIMIDIATE PLACENTA, and stated that, though in this case he had not had an opportunity of ascertaining the seat of insertion, in two others with which he had met, he had found that one portion of the placenta was adherent to the anterior, and the other to the posterior wall of the uterus, while the membranous portion between corresponded to the angle betwixt the two walls of the organ. It was well known that the uterine mucosa was much thinner along this angle than on the anterior and posterior walls; and it might be

that, in cases where a dimidiate placenta was ultimately developed, the vascularized portion of the chorionic villi corresponded to one of the sides of the uterus, and got embedded partly on the anterior and partly on the posterior wall. The preparation had, further, a pathological interest, from the circumstance that the patient had suffered from slight hæmorrhage and watery discharge about the middle of pregnancy. Between the sixth and seventh month, symptoms of labour set in, with a watery discharge, which the patient, a multipara, supposed to be the liquor amnii, though the membranes were unbroken; and, after some hours, the fœtus was expelled alive, but survived only half an hour. On examination of the secundines, there was seen an old decolorized clot adherent to the uterine surface of the decidua, where probably a ruptured vessel had furnished the discharge during gestation; and, at the margin of the placenta, was found a more recent clot, the serum of which had probably furnished the watery discharge noticed at the commencement of the labour.

II. *Dr James Young* read a paper entitled, "REMARKS ON VACHER'S FORCEPS, A NEW AND IMPROVED FORM." The principal feature being the elongation of the stem, giving more space in the adaptation of the blades over the fœtal head, the shaft being four inches and a half in length, while in the forceps of Dr Vacher the shaft is only one inch and a half.

Professor Simpson remarked that, being accustomed to the old form of forceps, we were naturally unwilling to adopt new ones. He could not see that this forceps, either in its original form or that as modified by Dr Young, had any advantage over the others in general use.

Dr Bruce failed to see in what respect they could be preferred over the ordinary form of short forceps.

Dr Macdonald considered that this forceps was constructed in such a way as to prevent the blades adapting themselves properly to any size of bevel.

Dr Young, in reply, stated he merely showed these forceps as he considered them an improvement on Vacher's original form. He must allow that they were still open to many objections.

III. *Dr Macdonald* concluded his paper on PUERPERAL ECLAMPSIA.

Professor Simpson thanked Dr Macdonald for continuing his paper and rendering it complete by reference to treatment. He thought Dr Macdonald's principles of treatment judicious. Each case, however, ought to be dealt with on its own merits.

Dr James Young personally thanked Dr Macdonald for his paper, more especially for his having gone so fully into the treatment. In his experience he had several times used the lancet—in one case, he believed, with the result of saving the patient's life. In another case in which venesection had been performed, the patient died. As a rule, he rested his whole strength on hydrate of chloral,

and most of the cases treated by this medicine had made good recoveries. He had used chloroform, but regarded it only as a palliative.

Dr Cappie said that, in speaking of treatment, Dr Macdonald had not referred to a class of cases in which convulsions and coma occurred before labour had commenced. A few years ago, he had read a paper to the Society detailing three such cases, and since then, four more had occurred in his practice. These were all first pregnancies, where the seizures came on before the full period of gestation, where they recurred every twenty or thirty minutes, and where, in a short time, the patients became so completely insensible that it was impossible to interfere with drugs. He had treated these cases as he had done those previously published. After waiting a few hours to ascertain whether the fits might not show a tendency to subside spontaneously, he adopted means to empty the uterus. As far as possible, he dilated the os uteri with at first one finger, then two, then three fingers. After the os could admit three fingers easily, he had been able to apply his forceps, and to finish the labour in the manner he had previously detailed to the Society. The results were as follows: In the first case, the labour was terminated in about two hours after beginning to dilate the os. The child was living, and the mother made such a good recovery, that she was able to nurse the child, and has been a second time confined without any complication occurring. The second case was more difficult, and the result was unfortunate. The child (dead) was delivered within a moderate time, but the fits continued frequent and strong, and the patient sank from exhaustion. The third case was one of Bright's disease of the kidneys, where there was great nervous depression on account of the patient at one time having been told by a physician that it would be an unfortunate thing for her if she should ever fall in the family way. The child was born alive, but died shortly afterwards from the debility of premature birth. The patient made a good recovery, had a second pregnancy, which ended by miscarriage, and some months afterwards she died from paralysis and other complications of Bright's disease. In the fourth case, the child was also born alive, but died a few days afterwards from debility. The mother made an excellent recovery. The urine in this case was so albuminous, that, on being heated, it became so solid that the test tube could be inverted without a single drop of fluid escaping. This patient is at present at the end of the eighth month of her second pregnancy, and as yet no albuminuria has shown itself.

Dr Dickson asked Dr Matthews Duncan what warning symptoms were observed in cases without albuminuria.

Dr James Carmichael thought every case of convulsion should be dealt with on its own merits. He would refer to one case in which he believed the patient's life had been saved by bleeding.

In this case the convulsions were almost continuous, so that the respiration and heart's action, as well as the function of the brain, were becoming seriously interfered with. The os uteri would scarcely admit the finger, was hard and rigid. Bleeding to the extent of nearly 30 ounces was resorted to, with the most beneficial effects. The severity of the fits was much abated, there being now an intermission between them. The os became flaccid, and within half an hour was so far dilated by natural and artificial means as to allow of the child being delivered by turning. The baby survived.

Dr Murray also mentioned a case in which convulsions had lasted for several days, and various plans of medical treatment had been adopted without effect. In this case bleeding was resorted to with good results.

Dr Macdonald briefly thanked the Fellows for the cordial reception given to his paper.

IV. *Dr Matthews Duncan* then read a paper by Dr Macdougall of Carlisle on a case of EXTRA-UTERINE FŒTATION treated by abdominal section, which appeared at page 11 of the Journal for July. On the proposal of the President, the discussion of this paper was deferred till next meeting.

Part Fourth.

PERISCOPE.

KÜHN. *Primary Carcinoma of the Kidneys in Childhood* (*Deutsch. Arch. f. Klin. Med.*, xvi. s. 306).—A girl, four years old, was affected by medullary cancer of the left kidney. The tumour weighed 8 lb. There were metastatic nodules in the left lung. In a second case, a medullary carcinoma had developed also in the left kidney of a girl eight years old, with metastatic affection of the liver. It is remarkable that in this case, with the beginning of the disease, there was an abundant development of the fine hairs on the general integument, and on the genitals and in the axillæ a growth of hair similar to that which accompanies puberty. There was, further, mucous discharge from the vagina. As the disease advanced the genitals developed to the condition distinctive of a fully grown woman, and the tender white tint of the skin in childhood became much darker. The state of congestion and the premature development of the genital organs was found at the autopsy to be due to an unusually strong development of the art. spermat. interna. There was no history of hereditary taint in either case.—*From the Centralblatt*, No. 15, 1876.

VON UBISCH. *A Case of Disease of the Tongue, connected with*

development of Leptothrix buccalis (*Berlin. Klin. Wochenschr.*, No. 52, 1875).—A man, between thirty and forty years old, otherwise healthy, a great tobacco-smoker, who had suffered severely from toothache, and had had all his molar teeth extracted but one, had remarked for about four years that the functions of the tongue were affected, and that the symptoms had got worse during the three months preceding the date of his examination. The mobility was impaired, and deglutition and phonation were consequently impeded. Digestion had in the meanwhile been quite normal. The thickness and breadth of the tongue were increased, and its consistence was firmer than in the healthy condition. The whole surface was covered with an unbroken, shining, milk-coloured deposit, thin on the point, and gradually getting thicker backwards, so that the papillæ circumvallatæ and the glands were completely embedded in the coating. The under surface was covered with a similar deposit; the edges, which showed the impressions of the teeth, were free from it. The gums, soft and hard palates, as well as the tonsils, were absolutely normal. When the deposit was removed, the underlying mucous membrane was not clean, the covering matter appearing to be actually embedded in the tissue. Microscopical examination showed that the deposit consisted almost entirely of masses of leptothrix. The treatment was therefore antiparasitic. The surface of the tongue was rubbed with solution of carbolic acid, 3 in 100, and the mouth washed out with a weaker solution. In a few weeks both the deposit and the swelling of the tongue had disappeared. The mobility became perfect, and the difficulty in speaking and swallowing ceased.—*From the Centralblatt*, No. 17, 1876.

M. Tittel. *A Case of Hæmathidrosis* (*Arch. d. Heilk.*, xvii. s. 62.—A man, twenty years old, strongly built, and of a healthy family, who, as a child, had had measles and scarlatina, first observed in his thirteenth year that, when his face was unusually pale, red sharply-contoured spots appeared. They were painless. At the same time the tongue was swollen, dark blue, and painful, speech difficult, the stools dark green, the urine a peculiar red. After eight weeks, during which time he had suffered from violent headache, everything returned to the normal condition. A year later, after violent mental excitement, he observed for the first time an oozing of drops of blood through the uninjured skin of the back of the left hand. This lasted for several days, during which time his mind was in a listless state. Later, this condition became recurrent on different parts, and especially on the feet, so that the stockings were coloured red. The author himself observed bleeding of this kind three times, and could see on the forehead, and especially distinctly on the palm of the left hand, drops of blood oozing out of the mouths of the sweat ducts. The same fact was observed by other medical men. That the fluid was actually blood was shown by microscopical examination. Before the

bleeding began, the patient was depressed, giddy, and sleepy, the hands and feet swelled, and the pulse, habitually slow, went at such times down to 40 per minute.

None of the organs showed any abnormality. The patient had subsequently remained free from the attacks.—(*From the Centralblatt*, No. 19, 1876.)

The Active Element in Vaccine Lymph.—In the *Centralblatt*, Nos. 20 and 21, Dr Arnold Hiller of Berlin gives an abstract of a great number of experiments bearing on the nature of the active essential element in vaccine lymph. His conclusions are in direct antagonism with those which have been formed by Chauveau and largely adopted in this country. Chauveau believes that the active element is to be found in bacteria, which are present in the lymph, and that successful inoculation consists in a development of the transplanted spores. Hiller's observations extend over 6840 individual inoculations. Lymph which was perfectly free from organisms gave not less than 88·8 in 100 successful results. He found that there is no constant relation between the contagiousness of vaccine lymph and the presence of micrococci.

He differs on other essential points from Chauveau.

Dr Klein, in reference to his investigations regarding sheep-pox, which are described in the Transactions of the Royal Society, has stated, in confirmation of Chauveau's doctrine, that in this disease the essential condition is a development of bacteria in the skin and in the blood. The experiments have been repeated by Dr Creighton, who communicated his results to the Royal Society at the last meeting of this summer. Dr Creighton found that Dr Klein had mistaken the products of coagulation by alcohol and chromic acid for bacteria, and Dr Klein at the same meeting acquiesced in Dr Creighton's correction.

Dr Hiller's and Dr Creighton's investigations thus support each other.

(It remains now to see whether the alleged discovery of a bacterium which was supposed to constitute the contagium of typhoid fever is based on a similar mistake. Considering the importance of the question, the profession will now expect further explanations on this subject.)

MALININ. *On the Recognition of the Blood of Man and of Animals in Dried Spots in Medico-Legal Investigations* (*Virchow's Arch.* lxv.).—Malinin recommends a 32 per cent. solution of caustic potash for the recognition of dried human-blood corpuscles. If the diameter of the corpuscles, after the action of the reagent, is less than 0·0060 mm., the blood is not human blood; if 0·0070 or more, it is probably human blood; if from 0·0060 to 0·0070, it is neither blood of the goat, sheep, nor ox, but possibly blood of the dog, swine, or man.—*From the Centralblatt*, No. 22, 1876.

C. KÖLMHORN. *Poisoning by Digitalis* (*Eulenberg's Viertel-*

jahrsschr., xxiv.).—To procure exemption from military service, two young men began and continued to eat digitalis leaves. One of them, who, in rather more than four weeks, had consumed 13·7 grammes, died suddenly on standing up. Some time before he had had a severe fainting fit on assuming the erect posture. The symptoms in both instances were those of severe catarrh of the stomach, which was, however, characterized by its obstinacy, the sickly appearance of the patient, absence of fever, and the increasingly and strikingly slow pulse. Later, there was difficulty in swallowing, and shortly before death singultus. Post-mortem examination showed that the brain and large vessels were empty of blood, the mucous membrane of the stomach and small intestine were ecchymosed, and partially injected with very fluid blood of a dark cherry-red colour. Otherwise the organs were normal. Proof of the poison was found by chemical analysis, as well as by microscopic determination of very small particles of digitalis leaves in the contents of the stomach.—*From the Centralblatt*, No. 27, 1876.

M. Huppert. *On Ejaculation of Semen in Persons who are Hanged.*—Casper and others have thrown doubt on this usually asserted fact. Huppert, after having satisfied himself of the ejaculation of semen during epileptic attacks, which he associated with dyspnœa, showed that the same thing occurs in persons who are hanged or suffocated in any other way. The semen usually remains concealed in the urethra, and is rarely emitted.—*From the Centralblatt*, No. 26, 1876.

Anti-Vivisectors in the Box.—"A large latitude in vituperation is by common consent awarded to philanthropists, just as a monopoly of the privilege of commination is conceded to theologians. For many months the advertising columns of the newspapers have been filled with invectives of the fiercest kind against all research conducted by experiments on living animals. All scientific men and most persons of any culture are aware that to vivisection we owe the discovery of the circulation of the blood, of the functions of the nerves, of the value of vaccination, of the nature and processes of breathing, of the nature and processes of digestion, of the meaning and character of the sounds of the heart, of the action of a variety of drugs, and of the relation of many of the most important antidotes to the most deadly poisons. Nevertheless, it has been declared by advertisement, at great length and great cost, that this which is the oldest and chief method of research, and which lies at the base of nearly all medical knowledge, is 'a new and horrible crime,' that nothing useful has ever been discovered by it, and that the medical profession of this country in countenancing it are introducing a novel and detestable practice. When a sufficient public excitement had been produced by the reckless violence of the statements and charges made, a Royal Commission was ap-

pointed to investigate the facts. It is not a little interesting to read the evidence which these gentlemen were able to produce, and to study the effect of cross-examination upon them."

After describing the evidence of Sir George Duckett and Mr Holt, the writer goes on to say, "As to Mr Hoggan, it need only be said that he admitted that he had never been inside an English physiological laboratory; so that the highly sensational document which he circulated widely at the commencement of the year was either a fancy picture or a description of something which he saw out of England; and that his panacea for the alleged 'hardening effects' of vivisection—of which practice he is a limited partisan—was that it should always be performed in a large hall, surrounded by a gallery to which the public should be admitted; so that he seems to think that what is 'hardening' to the moral sense of those who inflict pain under a deep sense of responsibility, and with a full knowledge of the beneficent objects which they have in view, would be edifying to merely idle and ignorant spectators, to whom such a spectacle would carry merely the impression of the shambles, and in whom it could gratify only a brutal lust for the sight of pain and suffering. It is not a little humiliating that such intellects as these should be accepted by foolish women and weak clergymen and their followers with much readiness and applause as the public guardians of morality and the arbiters of the high interests of science and humanity. They have not scrupled to attack a noble profession; they have by every art fostered a spirit of fanatical persecution; they have constituted themselves the leaders of a crusade; and but for the reaction of awakening reason which has manifested itself during the last week or two there was cause to fear that they had, by creating a fanatical outcry which simulated respectable public opinion, laid the basis of legislation which would have retarded the progress of the art of healing in this country, and permanently discredited the culture, the good sense, and the real humanity of the nation.

"Parliament and the country are becoming awake to the absurdity of directing an elaborate code of regulations and licenses against the infliction of pain by a small number of highly educated and humane persons on animals which are left at the mercy of the brutal, the ignorant, or the greedy trader; which are trapped, hunted, shot, and flayed for the market. It is apparent that there is more cruelty perpetrated in a rabbit-warren or on a large farm in a few months than by all the physiologists of Great Britain in a year; that the sum of animal suffering due to physiologists is very small, and that the benefits to humanity which have accrued from their researches are enormous and beyond all estimate. Before we can cast a stone even at foreign experimenters we must become vegetarians; we must unhorse our cavalry and put by our omnibuses and cabs; we must stop a large number of farming operations; desist from hunting, shooting, and fishing. In the face of the ordi-

nary practices of civilized society, all legislation directed against perhaps the only mode of and reason for inflicting pain on animals which can be immediately and fully justified becomes an odious hypocrisy. Physiologists, it was thought, were few, their pursuit little understood, and they would fall an easy victim to the fanaticism which just now rages against science in many of its shapes. The medical profession has done well to rise as one man, and to remind us that it is prepared to vindicate the justice and humanity of the scientific practices on which its knowledge is based, and that it claims to be the judge and regulator of its own honour and of the humanity of its members. So much of confidence it may at least fairly claim to receive; and the Home Secretary need not be charged with functions which properly belong to the College of Physicians."—*The World*, 28th June 1876.

Probably a unique Case of Operation for Strangulated Inguinal Hernia, performed Forty-five Hours after Birth, followed by Recovery of the Patient and a Radical Cure of the Rupture. By Frank Woodbury, M.D.—Through the kindness of Dr Thomas H. Andrews, Demonstrator of Anatomy at the Jefferson Medical College, the opportunity of seeing the result of a most interesting operation was recently offered, and permission accorded to present a brief account of it to the readers of the *Philadelphia Medical Times*. The operation for the relief of strangulated inguinal hernia by the indirect descent was performed in this instance, perhaps for the first time on record, upon a patient of such tender age, the infant being less than two days old at the time it was resorted to, after repeated attempts at reduction by taxis and treatment had failed. The case was then in such bad condition, that an unfavourable prognosis had been given, and no hopes held out of success. The subject was the twelfth child of a healthy American woman. The labour was not very difficult, and terminated on the 10th of August 1874, at five in the afternoon. At birth the child was asphyxiated, and some difficulty was experienced n establishing respiration, but after this it continued to cry and fret, giving the mother the impression that it was in pain; about midnight she noticed a prominence in the right groin, which seemed tender, and then about the size of a small walnut. The next evening Dr Andrews (who had been prevented by absence from the city from attending the confinement) prescribed an anodyne, his attention not being directed to the swelling. The following morning he discovered a tumour, which had now attained the size of an orange, and which he recognised as a hernia. Taxis was tried ineffectually, and repeated in a couple of hours, after a warm bath and small doses of opium, but with similar unsuccessful result; by this time, however, the swelling was as large as the child's head, and quite tender and discoloured. A final attempt at reduction was made at 2 P.M., but in spite of careful manipulation it again failed.

Ether was now administered, and, just forty-five hours after birth, the operation was performed. Upon opening the sac, an indirect inguinal hernia was discovered, which had become strangulated at the internal abdominal ring. The band of tissue causing the constriction was nicked with a probe-pointed bistoury, the opening enlarged with the forefinger, and the gut, which was purple from long-continued strangulation, carefully returned to the abdominal cavity with the aid of the forefinger and the ivory handle of an exploring-needle. The tumour contained the greater part of the small intestine from near the duodenum to the lower end of the ileum, but no omentum was found in the sac. The opposite walls of the canal were now brought together by one silk suture, the ends of which were led out of the external wound, which in turn was closed by several stitches, and dressed with oxide of zinc ointment, covered with picked lint. The patient made a rapid recovery, without a single bad symptom, a result as gratifying to the surgeon and parents as it was unexpected. A year has elapsed since the operation, which may now be considered as a final success. He is a strong, healthy child, and large for his age; until lately he has constantly worn a truss, but the hernia is now radically cured, and the support no longer needed.

MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By W. Handsel Griffiths, Ph.D., L.R.C.P. Ed., Licentiate of the Royal College of Surgeons of Edinburgh; Lecturer on Medical Chemistry in the Ledwich School of Medicine, Dublin; Corresponding Member of the Therapeutical Society of Paris; Honorary Member of the Ontario and Chicago Colleges of Pharmacy, etc.; Librarian to the Royal College of Surgeons in Ireland.

[The author of these Reports will be glad to receive any books, pamphlets, or papers relating to Materia Medica or Therapeutics. They may be forwarded through the agencies of the *Edinburgh Medical Journal.*]

Chloral.—(*a.*) *In Pityriasis Capitis.*—In a paper read before the Société de Thérapeutique of Paris, Dr Martineau recommends the treatment of pityriasis capitis by chloral lotions. He uses a solution of 25 grammes of chloral in 500 of water; this should be made lukewarm and applied every morning with a sponge. The rash and the pruritus rapidly disappear under the influence of the application. The immediate effects are redness of the skin and slight itching, but these inconveniences last only a few minutes.

(*b.*) *In Pruritus of the Vulva.*—Dr Gellé employs in this affection a solution of one part of chloral in ten of water as a lotion. Under this treatment the itching is lessened, and at the end of a fortnight is altogether subdued.—*Tribune Med.*, Dec. 1875.

(*c.*) *In Dysentery.*—Dr David Punice recommends as an abortive of dysentery chloral hydrate in a dose large enough to produce sleep (30 grains), in conjunction with one or two ounces of sulphate

of magnesia. Its effect may be aided by subcutaneous injection of morphia.—*St Louis Med. and Sur. Jl.*, No. 9, 1876.

(*d.*) *In Pains of Childbirth.*—In M. Polaillon's opinion chloral may be employed with advantage for assuaging excessive uterine excitability, or for the relief of pain produced by too violent contraction; but it ought not to be employed in normal accouchements. —*Union Médicale*, 15th April.

(*e.*) *In Tetanus.*—In the *Lancet* for 15th April, Dr Leonard Cane records a case of tetanus which was successfully treated by 20-grain doses of chloral, frequently repeated.

(*f.*) *In Chorea.*—MM. Goeltz and Auger record a case of chorea which was successfully treated by enemata of chloral after all other remedies had failed. Two injections daily of a drachm each of chloral were administered for fifteen days, by which time the movements had completely ceased.—*Gaz. Hebd.*, No. 50, 1875.

(*g.*) *Enemata of Chloral in Infantile Convulsions.*—M. Polaillon in two cases gave an enema of 3 grains of chloral in 5 drachms of water. Sleep and cessation of convulsions followed, and a repetition of the enema twenty-four hours later completed the cure.—*L'Union Médicale*, 23d March.

(*h.*) *Chloral Suppositories.*—The following is Mr H. Mayet's formula:—℞ Ol. theobromæ, gr. xxv.; cetacei, pulv. chloral, āā gr. xlv. For one suppository.—*Amer. Druggists' Cir.*, Dec. 1875.

Chloral acts almost as ene getically when introduced into the rectum as when given by the mouth.

(*i.*) *Intravenous injection of Chloral for the production of Anæsthesia.*—In a recently published work MM. Deneffe and Van Wetter detail their experience of this mode of producing anæsthesia. They recommend a solution of 10 grammes of chloral in 30 grammes of distilled water. If acid, this solution should be carefully neutralized by a few drops of solution of carbonate of soda. The authors give an ample description of the apparatus employed, and of the mode of procedure adopted. They claim the following advantages for this mode of producing anæsthesia:—1. Absence of any preliminary stage of excitement. 2. Absence of nausea and vomiting. 3. Accurate graduation of the dose administered. 4. Absolute character of the anæsthesia and muscular relaxation produced. 5. Prolonged blunting of the patient's sensibility, which protects him from the influence of shock. Among the hypothetical disadvantages of the system may be enumerated,—risk of thrombosis and embolism, difficulty of producing insensiblity, danger of prolonged stupor, inflammation of the wounded vein. The *observed* disadvantages are,—transient dyspnœa, occasional irregularity of the heart's action, presence of a small quantity of blood and albumen in the first urine passed after the injection, and risk of fatal syncope. MM. Deneffe and Van Wetter look forward to the time when intravenous injection of chloral will supplant all other modes of producing anæsthesia.

Butyl-Chloral.—Liebreich states that the substance commonly known as croton-chloral is, in fact, butyl-chloral, and contains two more atoms of hydrogen than was supposed. He finds that its physiological effects are constant, and that the anæsthesia which it induces commences at the head, and spreads thence over the body. With a fatal dose, the respiration ceases before the pulse. In chloral poisoning, paralysis of the heart is caused, both ventricles being found full of blood; while in poisoning from butyl-chloral, the left ventricle is contracted and nearly empty, the right cavities and lungs being charged with blood. In chloral poisoning, artificial respiration is useless, and the heart's action can only be restored by the action of strychnia on the cardiac ganglia. In poisoning by butyl-chloral, artificial respiration can re-excite the heart's action. Chloral kills by its action on the cardiac ganglia, butyl-chloral by its action on the respiratory centre. The duration of the narcosis produced by butyl-chloral is nearly two-thirds less than that produced by chloral. Liebreich believes that butyl-chloral may prove useful as an anæsthetic in operations about the head. Its practical value lies in its property of diminishing sensibility before inducing narcosis. In two cases of severe tic, fifteen grains of butyl-chloral produced complete relief, lasting for two hours each time the dose was repeated. The following formula is recommended by Liebreich:—Butyl-chloral 5 to 10 parts, glycerine 20 parts, water 130 parts. To avoid the production of hypnotism, and to obtain anæsthesia merely, the administration should be commenced in small doses. To produce sleep, from 15 to 45 grains, according to circumstances, will be needed. Butyl-chloral should be taken after meals, and should be followed by a copious draught of water.—*Deutsche Medicinische Wochenschrift.*

Dr N. Jerusalimsky finds that croton-chloral hydrate diminishes the pressure of the blood, whether the cerebral centres be injured or not; it therefore exerts a paralyzing action on the heart. Small doses retard the respiratory activity, larger doses arrest it. From experimental evidence, it is concluded that it exerts no specific influence on the fifth or any other sensory nerve.—*Mosk. Med. Zeitung*, No. 17, 1875.

Iodide of Starch.—Bellini suggests the employment of iodide of starch as a medicinal agent. He states that it forms with some poisons, as with strychnia, insoluble compounds; and with others, as with alkalies and alkaline sulphurets, it forms compounds which, though soluble, are not deleterious.—*L'Imparziale*, No. 7, 1875.

Quinine.—(*a.*) *Action of.*—Dr Vincenzo Chirone concludes from his experiments that the primary effect of quinine is to produce temporary exaltation of the functions of the respiratory apparatus, and that this state is followed by depression. At first it augments the force and frequency of the heart's action, and the rapidity of the

blood-current, and it slightly increases the arterial tension; it next diminishes the force of the systolic impulse, and causes an increase in the venous tension in relation to the arterial. He believes the muscular fibre of organic life to be the *seat* of the action of quinine, and excitation of muscular extensibility to be the *nature* of its action.—*Lo Sperimentale*, Fas. 11, 1875.

(*b.*) *As a Febrifuge.*—The *Practitioner* for June contains an interesting article on this subject from the pen of Professor Binz. He holds that quinine does not diminish reflex excitability in the nervous system, and that the improved condition in a fever patient after a good dose of quinine is to be attributed, not to the neurotonic action of the drug, but to a decrease in the oxidation and disintegration of the elements of the body as shown by the decrease in the excretion of urea.

Quinine possesses advantages over all other antiseptics and antizymotics. It can be given in large doses; it remains in the circulation for many hours; it does not enter into combinations or undergo decomposition within the organism, so as to become a thing chemically indifferent with respect to the ferments upon which it is desired to have it act.

The spleen is the chief source of the formation of uric acid, and quinine lessens the production of this acid very strikingly. This may be explained by the fact that the spleen contains an immense number of white cells, for which quinine is a highly efficacious poison. They are the seat of energetic oxidation, and this oxidation is lowered by quinine. In febrile processes the spleen becomes swollen, in consequence of the irritation it receives from the pyretic substances that circulate in the blood; but the activity of these substances being diminished by quinine, a diminution in the splenic enlargement is the result. The decline of temperature in fever, so generally induced by quinine, takes place independently of any connexion with the performance of the heart's action.

With regard to the treatment of sunstroke by hypodermic injection of quinine, Binz argues that the essential cause of this affection is overheating of blood and tissues, and therefore decomposition of the nutritive material. The blood acts as a poison to the heart and nervous system. Quinine, under such circumstances, acts as a direct antipyretic, as it does in malarial fever. That quinine acts directly on protoplasms, without any agency of the nerves being involved, numerous instances prove, and Binz brings forward experimental evidence in proof of this fact.

The well-marked action exerted by quinine in solution upon many septic ferments on the one hand, and its indifference towards the protoplasm of Penicillium glaucum on the other, may serve for an instance of the puzzling inequality of effects produced by this drug upon the fever-producing ferments within the body. Thus, quinine is an efficient remedy in ague, while it fails entirely in relapsing fever, and it acts with decided antipyretic power in

typhus abdominalis, while it seems useless in typhus exanthematicus, and so on. Dr Binz concludes an interesting paper by some remarks on the application of quinine in fever. He says it should be given in large doses, in a digestible form—that is to say, with some acid—and during the time when the fever tends to decrease. He enumerates the tests for the purity of quinine.

(*c.*) *Hypodermic Injection of Quinine.* — In a case of uterine congestion associated with quotidian intermittent, in which there was intense neuralgic pain in the right groin, M. Rouxeaus administered a hypodermic injection of 15 centigrammes of sulphate of quinine and 1 centigramme of sulphate of morphia over the seat of pain. The pain was at once relieved, and a repetition of the injection next day effected a cure.—*Journal de Méd. de l'Ouest*, June 1876.

Surgeon A. R. Hall says that the experience of several Indian medical officers is now apparently sufficient to prove that the hypodermic injection of quinine in heat-apoplexy is the most successful treatment hitherto adopted. He injects a solution of 5 grains of the sulphate in 5 minims of dilute sulphuric acid, and 50 minims of distilled water. Five cases so treated recovered.—*Practitioner*, March.

In the *Lancet* for 8th April, Surgeon-Major G. Y. Hunter writes relative to the subcutaneous injection of quinine in malarial fever. The following are his conclusions:—1. However well adapted this mode of treatment may be in selected cases—well fed and set up, and of naturally good constitution—it is inadmissible in the unhealthy class. 2. The method is not really economical, on account of the loss of labour and consequent diminished outturn. 3. Time is not gained, as, although the cure of fever is speedily effected, a week was lost subsequently, if ulceration occurred. 4. The operation is not painless, however carefully performed, and is not unattended with risk—one fatal case of tetanus is known to Dr Hunter, which appeared to be caused by it.

In the *Lancet* for 20th May, Dr H. P. Roberts records two cases of tetanus terminating fatally, following the hypodermic injection of quinine in malarial fever. He says that, from his experience of these cases, he has been obliged to abandon what has hitherto been with him a most ready and efficacious method of treating malarial poisoning.

Dr R. S. Dawson, writing to the *Lancet* for 8th July on the subject of the hypodermic administration of quinine, affirms that it is the undissolved crystals of quinine which cause the suppuration which frequently takes place. He has never had ulceration as a sequence to quinine injection,—a result which he attributes to the fact that he was careful always to use the quinine in a perfect state of solution.

Dr P. Jaillard (*Répertoire de Pharmacie*, N. S., vol. iii. p. 102) recommends for hypodermic injection the acid or neutral sul-

phovinate of quinine, especially the latter. This is very soluble in water and alcohol, but insoluble in ether. A solution of one part of the sulphovinate and two of distilled water keeps perfectly at the ordinary temperature. The author gives full directions for preparing the salt. For hypodermic use, one grain of sulphovinate of quinine may be dissolved by the aid of gentle heat in distilled water.

Mr Wellcome states that a solution of arabinate of quinine (1 grain in 3 minims) has given satisfactory results as a hypodermic injection, not causing any unpleasant local effects.—*Amer. Journal of Pharmacy*, p. 187, 1876.

(*d.*) *Quinine in Pertussis.*—Dr Bruen affirms, that to be of use in pertussis quinine should be administered, in rapidly-increased doses, for a period not longer than five days, when it should be stopped, and recommenced after an interval, if necessary. To do good it must be pushed to a quantity equal to a full antiperiodic dose. To a child under three years, 10 grains should be given in twenty-four hours; to a child twelve years old, from 16 to 20 grains should be given in the same time.—*Phil. Med. Times*, 17th July 1875.

(*e.*) *Quinine in Hooping-Cough.*—In the *Lancet* for 8th April, Dr John Reynolds writes in high terms of the treatment of this affection by full doses of quinine. He states that it has never yet failed in a single instance, even in the severest cases, to give almost immediate relief, and in from twelve to twenty-four hours to absolutely cure the patient. In the *Lancet* for 29th April, Dr L. Popp, of Munich, draws attention to the fact that this mode of treatment was first suggested by Mr A. Steffen, in the *Jahrbücher für Kinderheilkunde*, 4 Jahrg. 2 Heft, p. 227, 1871.

(*f.*) *Quinine in Sore Throat, etc.*—Dr Brakenridge has treated many cases of scarlatinal, diphtheritic, and other forms of sore throat, with a gargle containing 2 grains of sulphate of quinine and 5 minims of dilute sulphuric acid to each ounce of water. In the early stages of cynanche tonsillaris it proved useless, but in other cases, chiefly in diphtheritic sore throat, it proved a most successful remedy.—*Practitioner*, August 1875.

(*g.*) *Quinine as an Ecbolic.*—In the *Practitioner* for July 1876 is a paper by Mr J. H. Wathen, in which he records two cases which demonstrate very clearly the ecbolic action of quinine.

(*h.*) *Quinine in Cramp.*—Dr Busenlechner, of Hernals, near Vienna, relates a case of severe idiopathic cramps, occurring in the upper extremities of a married woman aged 24, who was suckling an infant eight months old. After failure with chloral, morphia injections, and castoreum, he administered 5 grains of quinine, which gave relief for eight days. Tremors then began in the fingers, and he gave another dose of quinine. There was no relapse at the end of six weeks.—*Med.-Chir. Centralblatt*, No. 18, Jahrg. 10.

(*i.*) *Bromhydrate of Quinine.*—Loulez confirms the conclusions of Gubler as to the efficacy of bromhydrate of quinine in malarial fever. He has found it to succeed when the sulphate has failed. It does not produce the quinine intoxication caused by the latter salt. Owing to its solubility, it is preferable to the other salts of quinine for hypodermic injection.—*Gaz. Hebd.*, 18th Feb. 1876.

(*j.*) *Phenate and Salicylate of Quinine.*—M. Maury makes the former salt by adding pure phenol to an alcoholic solution of freshly-precipitated quinine. Its unstable character unfits it for medicinal use. The salicylate of quinine may be obtained either directly or by the action of sulphate of quinine or salicylate of soda. This salt is not deliquescent, is soluble in hot and cold alcohol, but not in water, is decomposed by acids, and has a bitter taste. When taken internally it gives the urine an odour of meadow-sweet, and this secretion gives a violet colour with ferric salts. Salicylate of quinine has a marked power in checking and arresting fermentation.—*Lyon Médicale,* 18th and 25th July 1875.

Part Fifth.

MEDICAL NEWS.

CORRESPONDENCE.

UNIVERSITY OF EDINBURGH DEGREES OF BACHELOR AND DOCTOR OF SCIENCE IN THE DEPARTMENT OF PUBLIC HEALTH.

To the Editor of the Edinburgh Medical Journal.

SIR,—When I entered the University of Edinburgh, I was ready and willing to work for the highest medical degree obtainable in this country, expecting that it would open to me all civil appointments I might apply for. Surely my Alma Mater has not acted in good faith towards me and other graduates in originating new degrees, *obtainable only by at least three months' residence,* which will, apart from all legislative interference such as has been recommended,[1] make it in a few years useless for me to compete for public appointments with men perhaps fifteen years my juniors, but who have had the good fortune, during their curriculum, to attend a course of hygiene, and so obtain their degrees. It would be simple justice for the University to grant the B.Sc. degree to old graduates *on examination only*, and to make the examination for that degree something like those of the University of Cambridge for its certificates, while the D.Sc. might be reserved for those able to show an intimate acquaintance both with quantitative and qualitative analysis, after

[1] See Recommendation XI. of the Committee on Qualification in State Medicine.—Br. Med. Jour., vol. ii. 1874, p. 245.

having practised sanitary science for two years,—to men, in fact, who intended to devote their lives to that subject.

As to money matters, I may say, that if such degrees are necessary for the good of the state, the state ought to pay for the examinations, and not the men examined, especially such men as have already paid all that was required of them when they entered the University.—I am, yours faithfully,

A Graduate of 1866.

OBITUARY.

The Late Dr Heywood Thomson.—This distinguished member of the medical service of the Royal Navy died on 27th June at Douglas, Isle of Man. Dr Thomson entered the Naval Medical Service in 1836, and served on the coast of Brazil until September 1840. At Rio de Janeiro he received that year a public letter of thanks from Commodore Budgley and Captain Odgen, of the United States Navy, for services rendered in saving life. In October 1840 he joined, as a volunteer, the Niger Expedition, under Captain Trotter, and served in it until the return of the expedition in September 1842. Dr Thomson was several times most favourably mentioned in the senior officers' despatches, and promoted to the rank of Surgeon. He subsequently served on the coast of Brazil in 1843, 1844, and 1845, and in 1846–47 at the Cape of Good Hope, Mozambique Channel, and Madagascar. In 1848–49 he was employed in the superintendence of the conveyance of troops and convicts to Van Diemen's Land, and received the complimentary acknowledgment from Sir William Denison, Governor of the island, and Mr Hampton, Comptroller of the Convict Department, that no draught of convicts (300 in number) had ever landed in the colony in such a satisfactory state, as regarded health, cleanliness, discipline, and general appearance. In 1848 he was examined at great length before a committee of the House of Commons on the slave question; and the same year published, conjointly with his friend Captain (afterwards Admiral) William Allen, the narrative of the Niger Expedition, which was, by gracious permission, dedicated to His Royal Highness the Prince Consort. During his service he made large contributions to the British and Haslar Museums, and it was from his collection of the zoology of Fernando Po that the title of section "Poensis" was given to the animals of that island and some other parts of West Africa. In 1853 Dr Thomson was awarded the Blane Gold Medal by the Admiralty for his professional journal while serving on the east coast of Africa. He was put on the retired list as Staff-Surgeon in 1859. On coming to reside in the Isle of Man, Dr Thomson was made a Justice of the Peace in 1867. He died in his sixty-second year.

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Dr A. Amussat,—Mémoires sur la Galvano-caustique Thermique; and, Des Sondes à demeure et du Conducteur en Baleine. Paris, 1876.

Henry Beasley,—The Book of Prescriptions. London, 1876.

Robert Bentley, F.L.S., and Henry Trimen, M.B., F.L.S.,—Medicinal Plants, Parts 8, 9, 10. London, 1876.

Patrick Black, M.D.,—Essay on the Use of the Spleen. London, 1876.

Braithwaite's Retrospect of Medicine,—Jan. to June 1876. London, 1876.

Edgar A. Browne,—How to use the Ophthalmoscope. London, 1876.

Charles J. Cullingworth,—The Nurse's Companion. London, 1876.

T. B. Curling, F.R.S.,—Observations on the Diseases of the Rectum. London, 1876.

William Dale, M.D.,—The State of the Medical Profession in Great Britain and Ireland. Dublin, 1875.

Dr Debout D'Estrées,—Les Causes de la Gravelle et de la Pierre. Paris, 1876.

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Eleventh Annual Report of the Sanitary Commissioner with the Government of India for 1874. Calcutta, 1875.

Tilbury Fox, M.D.,—Atlas of Skin Diseases, Parts VIII., IX., X. London, 1876.

Alfred Baring Garrod, M.D.,—Gout and Rheumatic Gout. London, 1876.

German Clinical Lectures, published by the New Sydenham Society. London, 1876.

Surgeon-Major Albert Gore, M.D.,—Medical History of our West African Campaigns. London, 1876.

Guy's Hospital Reports, vol. xxi. London, 1876.

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Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*Diphtheria and Croup:—What are they?* By Sir JOHN ROSE CORMACK, K.B., F.R.S.E., M.D. Edin., M.D. Paris, Fellow of the Royal College of Physicians of London, Chevalier of the Legion of Honour, Physician to the Hertford British Hospital of Paris.

A COMMITTEE appointed by the Royal Medical and Chirurgical Society "to inquire into the relations of Membranous Croup and Diphtheria" have issued a list of queries, to which, "for the purposes of the inquiry," are prefixed the following definitions:—

"DIPHTHERIA is a contagious specific disease, which is accompanied by the formation of false membrane in the pharynx, air-passages, and elsewhere."

"CROUP is a disease accompanied by the formation of false membrane (mainly in the larynx and trachea), the origin of which is in question. No case is to be spoken of as an example of croup in which false membranes were not observed either during life or after death."

The QUERIES are as follow:—

"1. Is your field of observation situated in an urban or a rural district, or partially in both?

"2. What is the nature of the locality as to climate, soil, elevation, proximity to the sea, or to a river; or as to the drainage or overcrowding of any part of your district?

"3. Have any of these conditions appeared to you to exercise an influence on the prevalence of either form of disease?

"4. At what seasons of the year does either form chiefly prevail? Do they prevail simultaneously, either sporadically or epidemically; or may epidemics of the one be distinguished from epidemics of the other?

"5. In connexion with what other diseases; either with influenza and bronchitis on the one hand: or with angina tonsillaris, or other forms of sore throat, measles and scarlatina, or other specific disease, on the other hand?

"6. Have you observed cases of croup setting in with catarrhal

symptoms, unattended by difficulty of deglutition, or by deposit of false membrane on the fauces, to be associated with albumen in the urine, or followed by paralysis?

"7. Have you seen in the same family at the same time, cases of croup in one member, and of diphtheria in another; and have you any evidence to show that membranous croup is contagious, and capable by its contagion of producing diphtheria?

"8. Taking the pathological fact of false membrane limited, or chiefly limited, to the larynx and trachea, what evidence can you adduce as to its origin; on the one hand, in the specific poison of diphtheria, and on the other, in a definite exposure to cold, or any other cause of ordinary inflammation?

"9. If you believe the two diseases to be identical in nature, on what reasons do you chiefly rely in forming your opinion?"

The last of the series of questions implies that at least some of the physicians to whom the definitions and queries are addressed, may hold that "croup" and "diphtheria," as defined, are identical; but from the manner in which the definitions and questions are presented in the circular, it is impossible to give succinct answers not liable to be misunderstood. This arises from the questions being based upon the assumption—that there are two distinct diseases, which both give rise to a tubular membrane in the larynx and trachea.

The subject in its recent controversial bearings is one in which the clinical has been mixed up with the literary element. It is sometimes a *fact*, and sometimes only a *word*, which we are called upon to weigh: but it is not always possible to say which.

The object of the following remarks is to reply in an informal manner to some of the questions which have now been quoted, and particularly to deal with the question of the day—"*What is Croup?*" In recent numbers of this Journal,[1] I have described and defined *Diphtheria;* and what I have said is in harmony with the brief definition of that disease given by the Sub-committee of the Royal Medical and Chirurgical Society.

In 1826, Bretonneau, the renowned physician of Tours, by the publication of his work entitled—"*Recherches sur l'Inflammation Spéciale du Tissu Muqueux, en particulier sur la Diphthérite*"—created the name, and first pointed out the true pathology of the disease, of which, in previous numbers, I have described some typical examples. It must, however, be remembered that although that work contains a grand unveiling of the truth, and constitutes the foundation, and much more than the foundation, of one of the most brilliant and important clinical inquiries which adorn the history of medicine, it is not so complete an account of DIPHTHERIA as other accounts written by subsequent authors, who, using his canvas, have filled up and corrected some of his outlines. Bre-

[1] See Numbers for March, April, May, June, and July 1876.

tonneau himself, by clinical study, considerably modified his original view of the pathology of the disease. Both in his earlier and later writings, he regards as specific the exudation which becomes a tough, leathery, coherent pseudo-membrane; but in his latest memoir, published in 1855, he substituted the term *diphthérie* for *diphthérite*, because he had discovered that the disease is not of an inflammatory character.

From the year 1826, when Bretonneau published his first memoir, until the appearance in 1859 of Dr R. H. Semple's volume for the Sydenham Society, the word *diphtheria* scarcely ever occurs in British medical literature, and when it is employed, it is only in the writings of those who had personally known Bretonneau, or who had some considerable acquaintance with French medical books. Among the very few British medical authors who had used the word *diphtheria*, or described the disease, were Dr John Conolly, whose brother, Dr William Conolly, when practising at Tours, had attended several cases with Bretonneau; Dr Copland, who had visited Bretonneau at Tours, and who alludes to the disease in his article "Croup" in his Cyclopædia; and Dr John Abercrombie of Edinburgh, who mentions the malady incidentally and parenthetically in his work on "Diseases of the Stomach and Intestines." In the year 1859, the Sydenham Society published Dr R. H. Semple's translation of a series of memoirs from the French. This volume included the whole of Bretonneau's contributions to the history of diphtheria, and also those of some of his pupils and successors, among the most distinguished of whom was Trousseau, who has most ably and successfully developed the ideas originating with his instructor. This volume was the first contibution to the general history of diphtheria which appeared in Great Britain.

The works of Bretonneau are exceedingly valuable, as containing the record of a great number of well-collected facts, a great mass of important historical research, a large amount of correct pathological reasoning, and some most useful therapeutical lessons. But it must not be supposed that all his opinions are equally trustworthy; for in the early period of all discoveries it is inevitable that much loose generalization will be advanced and some doctrines proposed which subsequent experience will tend to disprove; and from such demerits the memoirs of Bretonneau are by no means exempt. His writings must therefore be regarded as pioneers in a path which subsequent investigators have carefully explored, and from which some superfluities and obstructions have been removed. It is, however, rendered quite evident from the writings of Bretonneau and those of his disciples, collected together in the volume of the Sydenham Society, that the disease now known as diphtheria has existed, although under different names, at many periods in the history of medicine, sometimes appearing as a destructive and widely-spread epidemic, and some-

times—perhaps constantly—occurring in a sporadic form. Bretonneau succeeded completely in proving that the epidemics he witnessed at Tours were no other, in their pathological nature, than those which had desolated many other parts of Europe in former years, as Italy and Spain in the seventeenth century, and Italy and Scotland in the eighteenth; at which latter epoch the disease was also described as occurring in New York, where it carried off the celebrated Washington. These and many other epidemics—described respectively by Baillou of Paris, Nerrera of Spain, Nola, Sgambati, Carnevale, and Cortes of Italy, Francis Home of Edinburgh, Starr of Cornwall, Samuel Bard of New York, and others—were identical with the epidemic of Tours, first noticed and described by Bretonneau in 1826, and with subsequent epidemics occurring in the same place and also described by him, and with other outbreaks afterwards observed in various parts of France. It is well known that in 1857, and several subsequent years, the disease described by Bretonneau occurred as an alarming and widely-spread epidemic in England.

On its first arrival in Great Britain, its title to any special designation was generally doubted, and it was regarded as only an exaggerated form of sore-throat, or a peculiar and abnormal development of scarlatina; but, by a sudden change of professional opinion, no sooner had the features of the disease been fully established, than almost *every* form of throat-disease was dignified by the title of diphtheria; and some medical writers in England endeavoured to show that the name was only a generic term including all kinds of diseases affecting the throat, such as scarlet fever, thrush, laryngitis, quinsy, and many others. That the real nature of diphtheria was often misunderstood may be inferred from a perusal of the medical periodicals of the time, in which we find, for instance, a writer proclaiming that in a widespread epidemic of diphtheria, he had employed a remedy so valuable that he had not lost a single patient; and another describing a visitation of what he terms diphtheritic scarlatina! The first writer must have overlooked the circumstance that diphtheria is essentially a most dangerous and fatal malady; and the second obviously confused together two diseases which are as distinct from one another as measles and smallpox.

Another, and certainly the most troublesome element of confusion in the literature of the subject, is the bewildering jumble as to the nature of diphtheria which was some years ago almost universal in lectures and text-books, and is only now beginning to disappear under the enlightening influence of a few British writers, among whom deserve to be specially mentioned Dr George Johnson and Dr R. H. Semple. These writers have done good service to the science of medicine by the clearness with which they have pointed out the nature of the misunderstanding so long prevalent among clinicians and compilers as to the relations to one another

of "diphtheria" and the so-called "croup." The "croup" of Francis Home, the "true croup" of the latest French writers, and the "tracheal diphtheria" of Bretonneau, are synonymous terms; but, nevertheless, it does not follow that "croup" and "diphtheria" are the same, inasmuch as many English authors have confounded different diseases under the one designation of "croup."

DIPHTHERIA is a specific, contagious, asthenic, general disease, characterized by the exudation in certain situations—particularly on the mucous surface of the soft palate, uvula, tonsils, pharynx, larynx, and trachea—of a peculiar cacoplastic lymph, which, together with epithelial cells, generally forms a thick, tough, and stratified pellicle, or false membrane. The false membrane is not a product of the process commonly called inflammation—it is not ordinary lymph—it is a stroma made up of mucous and epithelial cells, arranged in layers of cacoplastic exudation, which are placed one above another, and are separable from one another like the leaves of a book. Some fibrillation is observable in the texture of the layers, but the layers do not consist of fibrin or of albumen.

"Membranous sore-throat" and "diphtheritic sore-throat" are used by some as synonymous terms; and there are some who use *membranous* and *diphtheritic "croup"* as synonymes. Such an employment of words ought, however, to be avoided. It would be well if the word croup were expunged from medical literature. From its many meanings and misleading traditions, it has become a source of chaotic controversy and confusion in our current medical literature. If the word be retained, it ought only to be as a synonyme for stridulous breathing, and not as the name of a disease. The worse than uselessness of continuing to use "croup" as the name of a disease is obvious, as it is currently applied in different senses. A retrospect of the history of the term *croup*, and a statement of the various and even opposite meanings now attached to the word, show the desirability of allowing it to fall into desuetude as the name of a disease, and of only employing it —if at all—as signifying stridulous breathing, without relation to the cause of that symptom.

"CROUP" is a word which has a more curious history in the literature of clinical medicine than any other word with which I am acquainted. Its *débût* in the arena of scientific medicine has been well described by Dr Charles Wilson in his learned and valuable "Observations on Croup," which appeared in 1855 and 1856 in this Journal. Dr Wilson's work is of sterling value, and contains much interesting research and good clinical observation; but, like many less important writings on the same subject, it has a fundamental blemish, which stands forth conspicuously in the light of modern pathological research—it confounds different diseases under one name.

"The first appearance," says Dr Charles Wilson, of the word *croup* "in our medical literature, in as far as I know, is in a letter

addressed by Dr Patrick Blair to Dr Mead, dated 'Cowpar of Angus, 6th July 1713,' in which the writer, discussing more particularly *pertussis*, speaks of 'a certain distemper with us called the *croops*, with this variety, that whereas the chink-cough increases gradually, is of long continuance, seizes in paroxysms, and the patient is well in the interval; this convulsion of the larynx, as it begins, so it continues so violently that unless the child be relieved in a few hours, 'tis carried off within twenty-four, or at most forty-eight hours. When they are seized they have a terrible snorting at the nose, and squeaking in the throat, without the least minute of free breathing, and that all of a sudden, when perhaps the child was but a little time before healthful and well.' [*Observations in the Practice of Physic, etc.*, p. 92. London: 1718.] The orthography of Blair thus marking the usual pronunciation, we find the word at later intervals uniformly written as *croup*. For the origin of this term we justly look for a root which is common to the whole of the Teutonic tongues, and which appears, for example, in the Icelandic *Hròp* (*clamatio*); in the Anglo-Saxon, Hreopan (*clamare*), and in *Crâran*, præt. *crèòv* (*cantare instar galli*); in the Gothic, Hropjan, Hropi (*clamare, clamor*); and in the old German, Hrōf (*clamor*): the letters *h* and *c*, and *v*, *f*, and *p* being readily interchangeable in these kindred languages. But it is to the Frisian element of our language, the importance of which is becoming daily more recognised by philologists, and to where we find it now most directly represented, that we may refer for the term the closest allied to our primary signification of *croup:* the modern Dutch word *geroop* (cry) being pronounced so as to be as intimately analogous in sound as it is likewise in signification. The North of England and Scottish word *roop* (*hoarseness*) will suggest itself as referable to the same origin. We are thus carried back to an era prior to that in which the Anglo-Saxon, Frisian, and Dane parted from their common stock; and long prior to the successive periods at which they settled in this country. A term so ancient, so expressive in itself, and so thoroughly and specially an appropriation of our medical literature, ought not to be endangered by being allowed to swerve into meanings remotely derivative."[1]

It is easy to see from the scope of his work that Charles Wilson takes a symptom—stridulous breathing—considers it as a disease, and calls it *croup*—a word for which he entertains a strongly expressed veneration and affection, with which, as a Scotchman and an Edinburgh student of the Alisonian era, I sympathize. As a practical physician, however, long since converted by Bretonneau and Trousseau to views different from those which I was originally taught, I entirely differ from Dr Charles Wilson as to employing "croup" as the name of a disease.

Unfortunately, the word has already not only drifted very far

[1] Edin. Med. Journal for February 1856, p. 675.

from its original signification—which was simply *stridulous breathing*—but has acquired entirely new meanings in passing into the literature of foreign countries. A very cursory review, or even a mere glance at British, French, and German medical literature, will at once establish the accuracy of this statement, and explain the strange pathological jumble in which the whole question was long involved, and from which it is only now emerging.

Most French physicians of the present day, adopting the views as well as the nomenclature of Bretonneau and Trousseau, apply the names *croup* and *vrai croup* (true croup) to distinguish it from the *faux croup* (false croup), the non-membranous affection in which spasm with stridulous breathing is the predominating feature. Many of them in this way include together the non-inflammatory spasmodic affection (laryngismus stridulus) and the inflammatory affection (laryngitis), which latter is nearly always a stridulous affection in infants and young children. It is the "inflammatory croup" of various English authors, and was represented by Francis Home as a stage of membranous croup (diphtheria). Home, in his curious little monograph, describes only eight cases, and of these, five are tracheal diphtheria, and three laryngitis. As no false membrane was seen in these three cases, he—like many of his successors—jumped to the conclusion that the false membrane was absorbed, or its formation prevented by the treatment. For a long period, his successors, British and foreign, continued to make the same mistake—and, indeed, till Bretonneau published the results of his clinical study, the error now adverted to was universally accepted as the truth. Cheyne mixed up tracheal diphtheria with laryngitis, and attributed the recoveries from the latter to the energy of the treatment by bleeding and purging, and he ascribes the deaths from tracheal diphtheria to the omission or imperfect adoption of that treatment. In 1810 the Emperor Napoleon offered a prize for the best treatise on croup. Many essays were sent in to compete for the reward. The successful competitor was Albers, of Bremen. It seems very evident that he obtained the prize because he roundly stated that he cured all his patients, and that the practitioners who had not the same success were unsuccessful only because they did not bleed as early and as largely as he did. All the Napoleonic prize competitors confuse together laryngismus stridulus, common inflammatory laryngitis, and laryngo-tracheal diphtheria.

Most British authors, when they write about "croup," really mean laryngitis and laryngo-tracheitis. If the term "croup" be so interpreted, it is of course a disease totally different from diphtheria. So explained—that is to say, interpreting simple inflammation by the term — I can concur with much that is contained in the following remarks made by Professor Spence in his remarkable and instructive address in Surgery, delivered before the British Medical Association at Edinburgh, in August 1875:—

"It has been with no small amazement," said Professor Spence, "I have read some of the views recently propagated, that croup and diphtheria are identical. I can hardly conceive two diseases more different, whether we consider them in their causation, symptoms, or sequelæ. In one feature, doubtless, there is similarity, because, when in diphtheria the air-passages become affected, the presence of the membrane exuded necessarily gives rise to the same physical symptoms as to sound of voice, breathing, and asphyxiating paroxysms, as the false membrane in simple croup does. But in diphtheria, the exudations in the larynx or elsewhere are the local expression of a special blood-disease, which may and often does destroy life without affecting the air-passages at all; whereas in simple croup, the false membrane is the result of a local inflammation. The causes or circumstances in which the two diseases originate are, according to my experience, very different. Ordinary croup almost invariably arises from exposure to cold, or occasionally from some source of local irritation, leading directly to inflammation of the mouth, as dentition."[1]

Agreeing generally in these remarks, I doubt whether a false membrane is ever formed on the mucous surface of the larynx or trachea in *any affection which is not diphtheria.* I have never seen an inflammatory false membrane in these situations, though I have long been diligently inquiring after such cases. I may be wrong; but till, by an actual clinical demonstration, the contrary is established, I shall continue to believe, with Dr George Johnson and Dr R. H. Semple, that false membrane is never met with as the result of a simple local inflammation.

Some of the best French writers comprise in one name both the nervous and the inflammatory affection—a proceeding which Dr R. H. Semple says is a cause of confusion. To a certain extent it does occasion confusion; for laryngismus stridulus and laryngitis stridulosa are essentially distinct pathological conditions. On the other hand, the French writers, censured for inaccuracy by Dr R. H. Semple, are not altogether wrong, because a case which is pure laryngismus at its commencement often becomes catarrhal, and inflammation of the larynx is a common cause of spasm of the glottis; in fact, spasm of the glottis occasioned by laryngeal inflammation is the affection sometimes called "laryngitis stridulosa" and sometimes "inflammatory croup." Nevertheless, the criticism of Dr R. H. Semple is well founded. Its bearing on practice is very important. There are many cases of laryngismus stridulus presenting phenomena which are clearly reflex—truly nervous—the pneumogastric nerve being implicated, in which the nervous symptoms cease as if by magic, when the source of irritation is removed. For instance, we often see symptoms of

[1] Address in Surgery, delivered at the forty-third annual meeting of the British Medical Association, held in Edinburgh, August 1875. [Reprinted from the British Medical Journal for 14th August 1875.] *Vide* p. 21.

impending suffocation disappear suddenly on lancing the gums. This is not laryngitis; and it is a condition in which depletion is out of the question. Moderate cases of laryngitis are successfully treated by ipecacuan, purgatives, and poultices; severer cases demand the severer treatment by leeches and tartar emetic.

"Rilliet and Barthez," says Dr R. H. Semple, "in their *Traité des Maladies des Enfants* (second edition, 1853), draw a clear distinction between 'croup,' or, as they term it, *laryngite pseudo-membraneuse*, and 'laryngitis stridulosa,' which they term *laryngite spasmodique*. I do not adopt the names given to these affections by Rilliet and Barthez, because the first is not proved to be an inflammation, and the second is so distinctly inflammatory that the epithet *spasmodique* might lead to misconception as to its true nature. But the two affections which Rilliet and Barthez call respectively *laryngite pseudo-membraneuse* and *laryngite spasmodique*, correspond exactly to the two described by other authors as 'tracheal diphtheria' or 'croup,' and 'laryngitis stridulosa.' Strangely enough, Rilliet and Barthez state that in France the two affections are confounded together, while in England they are carefully distinguished—a statement exactly contrary to the fact; for in France, the laryngeal affection attended by the pseudo-membranous is always referred to diphtheria, while in England the tracheal diphtheria and laryngitis stridulosa are generally confounded together. Without entering at length into the details of the two affections given by Rilliet and Barthez, it may be stated that while the production of the false membrane is the essential character of the one disease, it is never found in the other."[1]

In the medical literature of Germany the terms "croup" and "croupal" have (to adjust the phrase of Dr Charles Wilson), "drifted" very far away from both the Scottish meaning and from the French perversion of the word. German writers, adopting a purely anatomical division, apply the term "croupal" to all affections which are characterized anatomically by the formation of a fibrinous exudation or superficial false membrane upon a subjacent mucous surface in a state of integrity: hence we find them speaking of *croupal nephritis* and *croupal gastritis*. They apply the term "diphtheritic" to deaf or interstitial pseudo-membranous exudations accompanied by infiltration and elimination of the parts subjacent to the false membrane. An example will make clear the essential difference between the French and German nomenclature. The term "croupal pneumonia" is generally employed in Germany to denote acute pneumonia with fibrinous exudation. Some German writers, looking to the pseudo-membranous and ulcerative character of dysentery, speak of it as "intestinal diphtheria."

[1] On Diphtheria and the Diseases allied to it, or which may be mistaken for it. Transactions, 1870, of the St Andrews Medical Graduates' Association. London, 1871. *Vide* p. 215.

DIPHTHERIA, then, is, and CROUP is not, a disease. What is CROUP? Only a word—a word which originally meant stridulous breathing, a symptom of laryngismus stridulus, laryngitis stridulosa, laryngo-tracheal diphtheria, and some other affections—a word which in different countries has drifted into different meanings—a word currently applied by British authors to diseases essentially distinct in their pathology—a word, therefore, which, from the confusion it occasions in British and international literature, ought to be removed from medical nomenclature. It is not necessary to find a substitute for the word *croup*, all the various diseases which it embraces having already their own appropriate and separate names in all languages.

In support and illustration of the views here advanced in relation to the use of the terms "croup" and "diphtheria," I refer to a paper—"On certain points relating to the Etiology, Pathology, and Treatment of Diphtheria," by Dr G. Johnson, in the *Lancet* for 2d and 16th January 1875; to a "Lecture on the Relation between Croup and Diphtheria," by the same author, published in the *British Medical Journal* for 18th September 1875; to a pamphlet "On Croup and Diphtheria," by Dr R. H. Semple, (London, 1872); to a review of works on "Croup and Diphtheria," in the *British and Foreign Medico-Chirurgical Review* for January 1876; and to letters which I published, in 1874 and 1875, in the *Lancet* and in the *British Medical Journal.*

Sir Thomas Watson and Sir William Jenner have recently adopted the modern views, as may be seen by reference to the article on Diphtheria in the "Lectures on the Principles and Practice of Physic," fifth edition, 1871, by the former; and to a "Clinical Lecture on Croup and Diseases that resemble it," in the *Lancet* for 2d and 16th January 1875, by the latter.

ARTICLE II.—*Puerperal Fever and Septicæmia: Their Relation and Probable Identity. With Cases.* By GEORGE HUNTER, M.D., F.R.C.S. Ed., Linlithgow.

(*Read before the Medico-Chirurgical Society of Edinburgh, 5th July.*)

DURING the months of March and April of this present year, it was my misfortune to have in my midwifery practice several cases of the so-called puerperal fever; and these occurred under such circumstances, and were followed by such singular and disastrous consequences, especially to those in immediate attendance upon them, that it has been deemed matter of sufficient interest to bring under the notice of this Society a brief account of each case.

It is always with diffidence that the general practitioner publishes cases of puerperal fever; for he almost invariably has to

record a fatal termination to the most carefully considered treatment; and the public mind being so awe-stricken at the very mention of the name, he runs no inconsiderable risk of loss of reputation, and certainly of loss of patients for many months to come.

But as I believe our acquaintance with the pathology of this disease—which might justly be denoted the "*opprobrium medicinæ obstetricæ*"—and our knowledge of its prevention and treatment may be advanced by the history of such series of cases being recorded, I do not hesitate to undertake the responsibility of having done so.

Before entering upon the consideration of my obstetric cases, I must refer to some other ailments which prevailed to a slight extent amongst my patients early in the spring of this year.

Mr Y., æt. 60, pricked his right thumb with a rusty knife early in January. This was followed by most serious constitutional disturbance, rigors, fever, temperature ranging from 102° to 104°, perspirations, etc.; with extensive lymphangitis and suppurative cellulitis of the entire hand and forearm, and, to a certain extent also, of the upper arm. Cellular, fascial, and ligamentous structures sloughed, and bone necrosed; and the products of this necrotic action so affected his nerve-centres and his constitution generally, that his pulse became weak and irregular, the apex of one lung hepatized, diarrhœa set in, and his life appeared to be in jeopardy. The thumb was amputated; abscesses in the forearm, and in the palmar and dorsal aspects of the hand, were evacuated, and drainage-tubes inserted. After a most tedious course of treatment—locally by antiseptics, and generally by tonics and nutrients—he is now almost well, the sinuses being almost closed; but the hand is stiff at the wrist, and the fingers are considerably flexed.

In the course of the surgical treatment it was noticed that the tissue *débris*, sloughs, and purulent matter removed by pressure, and in syringing the sinuses and drainage-tubes, smelt very offensively; and that, notwithstanding the very careful and diligent use of antiseptics and nail-brush, an unpleasant odour of the dressings was persistently exhaled by the fingers. I may here mention that the antiseptics employed in this case were carbolic acid, chloride of zinc, lotion and ointment of chloral, iodine, and boracic ointment and lotion.

Towards the end of January Mrs Y., wife of the preceding, was seized with a rather severe attack of erysipelas of the head and face, but made a good, though somewhat tedious, recovery. Two other cases of erysipelas occurred in my practice about this time: one of the head and face, which proved fatal on the sixth day; the other supervening on the eschar of a cautery wound of the right knee, for disease of that joint. This case was a serious one, and was attended with severe constitutional and local action. The temperature rose to 104·5°; pulse to 120–130; the upper third of one

lung became dull on percussion; the brain weakened; and the mental depression and distress were painful. The erysipelatous inflammation spread to the opposite limb, to the lower part of the abdomen, and over the sacrum. A very large collection of matter formed over the right sacro-iliac synchondrosis, which discharged sloughs and offensive matter for a period of three weeks or more. It was dressed with antiseptics twice daily; but from its situation, and with the cautery wound on the knee, there was some difficulty in turning the patient from the dorsal to the lateral position (which was the only one in which the patient could be dressed with satisfaction); and the fingers of both hands were exposed to the contaminating influence of the abscess contents, and to a superficial suppurative action with which the posterior surface of the right leg, from the lower part of the thigh to the heel, became affected. This patient made a favourable recovery so far as the erysipelas was concerned, but is still under treatment for the affection of the knee-joint.

In the spring months, I had also under my care several cases of scarlet fever; but as a month seldom passes without bringing under my notice some cases of this complaint, I do not at present dwell on them.

Turning now to the obstetric cases, of which four died and two recovered, I cannot undertake to furnish a detailed account of their respective daily conditions, which I believe would prove tedious alike to the hearer and reader, but I shall take notice of the most prominent features and characteristics of each.

The first case affected with puerperal fever was that of Mrs A., the mother of two healthy children, who aborted on the 23d February 1876, at the third month.

The hæmorrhage was not by any means profuse, but the decidua required some rather tedious manipulation for their complete removal; and it was noticed that portions of them had an offensive odour. On the third day after parting with the uterine contents, she had a rigor, followed by severe pain over the uterine region, with nausea, frequent weak pulse, increased temperature (103°), furred tongue, and marked diminution of the lochial discharge.

From this time until 3d March, when she died, the pulse became more frequent, ranging from 120 to 140, weak and thready; the tongue sodden and bile-stained, but not altogether dry; vomiting, principally of bilious, but latterly of most offensive matter, with a slight stercoraceous fetor, severe and sustained; expression anxious, but mental faculties preserving their usual alertness; the abdomen increased in distension, with the intestinal convolutions distinct and flatus retained, until respiration became shallow and embarrassed; and then the fall of temperature, with pinched expression, coldness of the breath, forehead, and nose, and icy feeling of the extremities ushered in the fatal termination.

Mrs Z. having been engaged to be with Mrs A. at her confine-

ment, came to her as nurse when she aborted, and slept in the same room, on a bed quite close to, and almost alongside, her patient. Mrs Z. was instructed and directed to make frequent vaginal injections and vulvar ablutions, which she carried out very carefully and satisfactorily, both with Condy's fluid and carbolic-acid lotion. She was almost in constant attendance on Mrs A. during the night, and was seldom able to undress completely for the few hours she might be able to snatch, while her patient was being watched by some of her own relatives.

Four or five days after Mrs A.'s funeral (11th or 12th March) Mrs Z. went home to her own family, which consisted of her husband, a man about 66 years of age, and an imbecile son of 18 years.

Ten or twelve days after her return, her husband exhibited symptoms of virulent blood-poisoning. These were violent rigors, followed by fever, thirst, frequent weak pulse, which soon became irregular; profuse perspirations, dry brown tongue, delirium, diarrhœa, etc.

A swelling began to form in the right axilla, which did not appear to be acutely painful, and which gradually increased to the size of a melon or cocoa-nut at the time of his death. Some of the contents were removed by the aspirator and found to contain sanious purulent matter, serum, and tissue *débris*. The urine did not contain albumen, and there was no disease elsewhere.

The *second* case (Mrs B.) was attended partly by my assistant Dr Brown, who remained with her the night of the 22d February; but she was delivered by myself on the evening of the 23d of her first child, having been in labour upwards of forty-eight hours. On the morning of the third day, she complained of chilliness, and shivered the same evening. This was followed by pain over the hypogastric region, the arrest of the lacteal secretion (the breasts never contained any milk), and almost complete cessation of the lochia. The subsequent course of Mrs B.'s case was in many respects identical with that of Mrs A., and the vomiting was less severe. The duration of the illness was the same, for she also died on the 3d March.

The nurse in this case slept in an adjoining room, and was frequently relieved by some of the friends of the deceased.

The *third* case (Mrs G.) was attended by Dr Brown on the 7th March in her fourth confinement. Labour was easy and natural, and nothing untoward happened until the evening of the second day after delivery, when she complained of coldness of feet and shivering feelings passing up the legs and across the small of the back. Early on the morning of the third day she was seized with severe pain in the left ilio-hypogastric region, rigors, great frequency of pulse, vomiting, and other symptoms, which, with the flabby mammæ, and arrested or greatly diminished discharge, left no doubt in my mind respecting the dangerous, and I may

say hopeless, malady with which I had to do. Death took place on the 13th March, six days after delivery, and after only four days' continuance of the more serious symptoms.

The effects to those in attendance upon Mrs G. were most serious, and to these I now wish to direct the attention of the Society.

Mrs X., the mother of this patient, who acted as nurse, making frequent vulvar and vaginal cleansings and injections, was seized on the fourth day after her daughter's delivery with prolonged shivering, followed by fever, sickness, great thirst, quick pulse, and acute pain from the right forearm to the shoulder. On the following day the right shoulder was swollen, and the supra-clavicular, subclavicular, and axillary glands were enlarged and painful. This was succeeded by alarming constitutional symptoms, with great and severe prostration. The pulse rose to 120, and was frequently irregular, the tongue dry and brown, and there was much thirst, with great mental depression and apathy. To the lymphangitis there were superadded cold shiverings (more than once repeated) and perspirations, and ultimately suppuration of the affected glands ensued. After evacuation of the large abscess which formed at the outer border of the pectoralis major, the symptoms abated, and on the 4th May she was convalescent and gaining strength rapidly. The cicatrix of a slight injury to the dorsal surface of the right index finger, which had escaped observation at the time of its infliction, was now discovered, and Mrs X. remembered her family calling her attention to it on her return to her own house immediately after her daughter's decease. It then resembled the small blister resulting from a burn, and was filled with white matter. The resulting cicatrix was the size of a shilling.

When Mrs X. became ill, another daughter attended Mrs G., and performed the duties of nurse until the latter's death. Three or four days afterwards, when in town shopping, Miss X. had a rigor, accompanied with a feeling of general illness and sharp pain on the dorsal aspect of the joint between the second and third phalanges of the right ring-finger. To much constitutional disturbance succeeded increasing pain, swelling and tension of the dorsal and palmar aspects of the hand, and brawny infiltration of the forearm, with red lines indicating the course of the inflamed lymphatics. The local symptoms increased still more in severity, until there were uniform redness, swelling, and tension of the hand, of the forearm, and part of the arm, with painfully enlarged glands in the axilla. Free incisions were made over the dorsal and palmar aspects of the ring-finger and hand, which gave exit to a considerable quantity of serum and sanious pus. The lips of the wound remained gaping, in this respect resembling an incision into a piece of liver, and exactly like the incisions into the hand of Mr Y., to whose case I have already alluded. Miss X. was

now removed from the house of her sister in the country to town, when the greatest care was observed in dressing the hand antiseptically morning and evening; and, fortunately, the finger was saved, although amputation at the metacarpo-phalangeal joint, or even of part of the hand, appeared at one time to be unavoidable. Recovery was tedious, there being much vomiting, anorexia, and despondency; but on the 4th June the wounds were completely healed, some stiffness and contraction of the ring-finger only remaining.

One of the servant-maids, who had washed some of the body-linen soiled by discharges from the deceased, next became affected. She shivered and complained of headache and feverishness, and suffered from sloughy ulceration of the tonsils, with enlargement of the submaxillary glands. She was under the necessity of leaving her situation to go to her own home, and she thus passed from my observation.

Finally, Mr G., a healthy young farmer, much out in the open air of his upland farm, was affected with general *malaise*, ending in inflamed tonsils, which, however, terminated in resolution after a short illness.

I discontinued obstetric practice from the 9th March to the 1st April, and went to the south of Dumfriesshire, where I freely exposed myself to the purifying influences of the ozone of the Solway Firth, and to the keen breezes from Skiddaw and Helvellyn. Before returning to engage in practice, I took a Turkish bath, made a complete change of clothing, and used the nail-brush, if possible, more diligently than before.

During my absence, the medical friend who had undertaken to attend obstetric patients for me, delivered six cases, and all did well.

From the 23d February—the date on which the first two cases originated—until 9th March, when Dr Brown and I discontinued practice, six women were delivered, five by Dr Brown and one by myself, and all made good recoveries. But it must be mentioned that in three of these cases the child was born on my arrival at the patient's house; in one instance the labour was completed, and in the remaining cases labour was easy and natural.

On the 1st of April I again resumed practice, on which date I was called to three obstetric cases. The first was quite over on my arriving at the patient's house, and made a good recovery. The second had completed the second stage, and, having previously smeared the fingers of my right hand with carbolic oil, I extracted the placenta; she also made a fair recovery.

The third case, my *fourth* fatal one from puerperal fever, was that of Mrs R., a healthy young primipara.

I used carbolic acid for the fingers of my right hand, and took the precaution to change my coat on my arrival, having borrowed

one from the husband for the occasion. In spite of all these precautions Mrs R. shivered on the third day, complained of pain over the uterus, and had a slight tendency to diarrhœa.

The course of her case was in every respect similar to the others narrated; but the symptoms were not quite so acute, for death did not occur until 10th April. After the third day, thinking it better and safer for my other patients, I discontinued my visits, and Dr Baird, my former partner, very kindly undertook the care of this case.

Mrs X., who lived near at hand, came to be with her daughter at her confinement. She was constantly in the same room with Mrs R., and, when the latter became seriously ill, slept in the same bed. On the second day (4th April) Mrs X., who had been very anxious about her daughter, pricked the middle finger of the left hand with a pin when removing the binder, and on the third day became suddenly ill, with shivering, vomiting, and headache. At the time of my visit, she had a pinched, earthy look, with hollow eyes, frequent pulse, and a tendency to retching and giddiness on walking. She was at once removed to her own house, and when seen the following day, she complained of pain in the left shoulder and axilla. On examination, it was found that the axillary and subclavicular glands were enlarged and painful to the touch, and that the arm and forearm were swollen and inflamed. Soothing lotions reduced the latter; but the glandular affection increased in severity, and, on the 11th May, a breakfast-cupful of purulent matter was evacuated from an opening at the anterior fold of the axilla, and a considerable amount also from a second opening on the inner aspect of the arm, a couple of inches above the elbow. These two openings communicated, and, on the 8th June, a drainage-tube was introduced.

During the maturation of the suppuration in and around these glands, Mrs X. was totally unable to leave her bed, and was subject to chills, followed by flushings of heat, generally ending in perspirations, which caused much adynamia. Since the introduction of the drainage-tube, and the more complete evacuation of the offensive discharge, appetite and sleep have returned, and she is now (28th June) convalescent.

A sister-in-law, who attended to Mrs R. and the infant after Mrs X.'s illness, and who slept in the same bed on the nights of 6th, 7th, and 8th of April, began at that time to complain of stiffness of one side of the neck when supporting Mrs R. in bed, and, on the 10th or 11th (April), it was observed that the submaxillary glands of that side were much swollen and painful. An examination of the fauces made the nature of the case apparent; for it was then observed that there was ulceration of the tonsil, with the formation of white sloughing patches on it. Extensive suppuration of the affected glands ensued, and, on the 5th May, the abscess was freely incised, giving vent to a large quantity of

healthy pus. She has not yet recovered her strength, and (28th June) still looks very anæmic.

A *second* sister-in-law assisted at the washing and dressing of the body of Mrs R., and, in doing so, carelessly put one of the pins into her mouth. On the following day she assisted in washing some of the clothing of the deceased. The same evening she returned to her own home in a neighbouring town, and found that her throat was affected. She was confined to the house for some time, under the care of the local medical attendant.

Soon after the infant's birth (9th April), those nursing it observed an offensive discharge from the roots of the finger-nails of both hands. Care was taken to prevent the child putting its fingers into its mouth, and a carbolic-acid lotion having been applied, it soon made a good recovery.

A *third* sister-in-law became affected soon after the opening of the abscess in her sister's neck, with swollen, inflamed, and slightly ulcerated tonsils.

Next, the husband of Mrs R. was seized eight days after the preceding with acute tonsillitis, which, however, did not go on to suppuration, but ended in resolution.

Finally, the husband of Mrs X., who had washed some of the bandages and rags soiled by the discharges from his wife's arm, was seized with erysipelatous redness and swelling of his right hand, near the root of the thumb, and between it and the index finger. Under the use of local discutient and sedative lotions, it gradually disappeared without leaving any bad results.

The next case of puerperal fever was that of Mrs V., who was delivered of her fifth child on the 4th April, after a natural but rather tedious labour. On the morning of the fourth day she complained of pain over the uterine region of a constant and persistent character, quite distinct from the "after pains." She was then feverish (temp. 104°), pulse 118, with headache, thirst, etc. The mammæ contained a little secretion, and the discharge, though diminished, had not by any means ceased, and was not particularly offensive. Under the exhibition of mild aperients and diaphoretics, such as castor-oil and Dover's powder, the symptoms gradually subsided, and on the eleventh day her pulse and temperature were much lower, and her general condition favourable.

The last case which gave any anxiety was that of Mrs W., who was delivered on the same day as the preceding case. On the evening of the third day she complained of headache, vomiting, thirst, and slight uterine pain; but there was no change in the lochial flow, which from the first had not been profuse. The lacteal secretion was long in coming, and she was drenched in perspiration. After being treated similarly to Mrs V., she gradually improved, and made a good recovery, but was longer confined to bed than ever she had been before.

From this material, and in the light of these cases, we now pro-

ceed to consider the relation which may reasonably be inferred to exist between puerperal fever and septicæmia. But, before doing so, there are one or two preliminary questions, which, though of great importance and of deep interest to us as practitioners of medicine, can only be briefly alluded to and hurriedly disposed of; for though pertinent to our inquiry, they do not necessarily come within the scope of this paper.

The idea that puerperal fever is a specific disease—a fever *sui generis*—was almost universally accepted until quite recently. This view now finds few supporters; and, as the most distinguished authorities in obstetrics are opposed to it, I shall not take up the time of the Society with any arguments of my own, or quotations from others, against it.

Regarding the connexion between the exanthemata, but especially between scarlet fever and erysipelas, much has been written; and, as the result of such writing, strong opinions have been stated and decided action taken. Dr Braxton Hicks and Dr Arthur Farre especially insist on the close connexion, if not identity, between scarlet fever and puerperal fever; and my own cases, and I am sure the experience of many members present, will give some support to the idea of such a connexion. But when we find women delivered with the bright rash of scarlet fever completely covering them (and on this point I have the positive testimony of Dr Baird's experience of such a case) making excellent recoveries; when we even find scarlet fever passing though the system of the mother, who was herself protected by a previous attack, and infecting the child *in utero* without serious consequences to the mother, as in a case related by Dr Cordes, Geneva; and when Hirsch and Veit have shown by statistics that there is no coincidence between the prevalence of the two ailments at the same time, —we are forced to the conclusion that puerperal fever is not merely scarlet fever in the puerperal state. Further, in a disease like scarlet fever, one expects to find identity of result from identity of cause. If a scarlet-fever germ is planted, we do not expect to find measles, or typhoid, or anything but scarlet fever result. Too many cases are on record, however, showing the disastrous results that accrue to puerperal cases from contiguity to the poison of scarlatina; but may it not be that the vital powers of the puerperal woman, having borne the burden and heat of the day of labour, and struggled with the physiological processes of lactation and uterine involution, find themselves unable to cope with the intrusion of this new poison, and too surely succumb to it?

Much and most reliable testimony has been given, and the evidence of competent observers adduced to show the intimate relationship, and even interchangeability between puerperal fever and erysipelas. I have adduced three cases having some bearing on this point. But the same arguments which were applicable in the case of scarlet fever here hold good. I shall quote three

cases[1] (with the Society's permission) which are, I think, decidedly *ad rem*, and which, in my opinion, render such a view untenable.

If it then be conceded that puerperal fever is neither a specific fever, nor erysipelas, nor scarlet fever; its probable identity with septicæmia only remains to be considered.

That the non-puerperal cases narrated, or the great majority of them, were those of undoubted blood-poisoning, must, I think, be readily admitted. A reference to their accession, course, and to the severity of the general and local symptoms, *e.g.*, in such a case as that of Mr Y., together with the absence of any other feasible explanation, sufficiently indicate this.

I have previously stated that the odour of the dressings and discharges from the affected thumb and hand of Mr Y. were most persistent; and, notwithstanding the most diligent use of the nail-brush and disinfectants, the fingers seemed constantly to exhale this offensive smell. Any one who has been accustomed to make frequent post-mortem examinations knows how pertinaciously the peculiar odour of the subject adheres to one's hands, and that it seldom disappears until the day following that on which the post-mortem was made. The reason appears to be that the increased temperature and more active capillary circulation which obtains when one is warmed in bed, cause greater rapidity in the cutaneous transudations and exhalations from the hands. When, however, imbibition by, and impregnation of, the epidermic cells, from prolonged contact with decomposing animal matter, is repeated twice daily for many weeks, it is not difficult to understand why it is that a continuous exhalation of an offensive character should be given off from these cells, in which, for the time, the septic matter would appear to have been stored and fixed.

The rate of exhalation would, to a considerable extent, depend upon the temperature of the hands and surrounding air; and thus, in the cold spring weather, it would be given off more slowly. But if brought suddenly into contact with the maternal passages of the parturient woman, and retained even for no great length of time there, where the facilities for rapid absorption are easy and great, the hand of the accoucheur so impregnated might produce an amount of mischief, the end of which it would be difficult to foresee. Especially would this be the case in primiparous cases, where there are almost constantly bruising and some laceration of the passages. Proceeding still further, we know that amongst the gaseous and other products which result from the putrefaction of dead animal tissues, are sulphuretted hydrogen, sulphuret of ammonium, and butyric acid. When solutions of these substances are injected into the cellular tissue of dogs and horses, as has been done by Billroth and Weber, septicæmia resulted—the animals dying in consequence.

[1] British Medical Journal, 5th Sept. 1874, p. 305; 16th May 1874, p. 646; and 17th April 1875, p. 503.

If we now apply this to the case of Mrs A., an explanation may be furnished as to the manner by which the septic matter gained access to the blood and tissues. It has been shown that the mucous membrane of the interior of the uterus contains lymphatics (Stricker's account of them is extremely meagre), which are highly absorbent; and as Dr Robert Lee has demonstrated, that in cases of septicæmia the veins of the uterus are always clogged up by coagula, it can only be by the former that the septic material, be it particulate or non-particulate, finds its way through the great lymphatic abdominal chain to the peritoneum, and there excites the peritonitis which is so frequent a concomitant of this disease.

That this was a heterogenetic case, notwithstanding the slightly fœtid state of the decidua, may be inferred from the fact that Dr Brown, who never examined this patient, was in a similar position to myself, so far as results to his cases were concerned; and it is more than probable that the same cause originated the mischief both in Mrs A. and Mrs B., both having been affected on the same day. The same explanation, *mutatis mutandis*, will apply to the infection or inoculation of the other cases; the fingers of the accoucheur playing the same *rôle* in the production of the septicæmia that the impure sponge does in the propagation of pyæmia in the surgical wards of our hospitals.

TABLE OF CASES.

Name.	Date of Confinement.	Pregnancy.	Medical Attendant.	Stage when called.	Bad Symptoms.		Duration.	Results.		Consequences.		Total No. affected.	Results in	
					Super-vention.	Termi-nation.		Mother.	Child.	Imme-diate.	Remote.		Class A.	Class B.
Mrs A.	Feb. 23	3d	Dr H.	1st	Feb. 26	Mar. 3	6 days	Death			1 ?	1		Death
„ B.	„ „	1st	Drs H.&B.	1st	„ „	„ „	„	„	Good					
„ C.	„ 24	3d	Dr B.	1st				Good	„					
„ D.	„ 25	2d	„	All over				„						
„ E.	Mar. 2	5th	„	3d				„						
„ F.	„ 5	2d	„	3d				„						
„ G.	„ 7	4th	„	1st	Mar. 9	Mar. 13	4 days	Death	„	2	2	4	Recov.	Recov.
„ H.	„ 9	3d	„	1st				Good	„					
„ I.	„ „	5th	Dr H.	1st				„	„					
„ J.	„ 17	4th	Dr Bl.	1st				„	„					
„ K.	„ 19	2d	„	1st				„	„					
„ L.	„ 26	1st	„	1st				„	„					
„ M.	„ 27	3d	„	1st				„	„					
„ N.	„ 28	2d	„	3d				„	„					
„ O.	„ „	1st	„	All over				„	„					
„ P.	April 1	3d	Dr H.	„				„	„					
„ Q.	„ „	3d	„	3d				„	„					
„ R.	„ „	1st	„	1st	Apr. 4	Apr. 10	6 days	Death	Recov.	3	4	7	2 under treatmt. 1 cured	Recov.
„ S.	„ 2	2d	„	1st				Good	Good					
„ T.	„ 4	1st	„	1st				„	„					
„ U.	„ „	4th	„	1st				„	„					
„ V.	„ „	6th	Drs B.&H.	1st	Apr. 6	Apr. 9		Recov.	„					
„ W.	„ „	4th	Dr H.	1st	Apr. 7	Apr. 10		Recov.	„					
„ X.	„ „	6th	Dr H.	1st				Good	Good					

On looking over the accompanying tabulated list of my obstetric practice from 23d February to 4th April, which was carefully and accurately prepared for me by Dr Brown, it will be noticed

that, placed after Mrs A., I have one case of septicæmia; but that it is open to discussion, whether or not it resulted from puerperal infection.

This was by far the most virulent case of blood-poisoning, death resulting in a few days. The view I have taken of this case, but which I am quite ready to modify on hearing the opinion of the Society, is, that the septic germs, adhering in myriads to the clothing and person of Mrs Z., found admission to her husband's circulation through the medium of the pulmonary mucous surface, and exhibited as their local exponent the axillary swelling and abscess formerly described. It may be conceived that Mrs Z. may have been *gradually* acclimatized to the presence of septic material in and around her; and, coming home to her husband, infected him without herself exhibiting any symptoms of septicæmia. Especially does this view recommend itself when we take into consideration what was occurring to some others under my care at this time. It is an admitted fact, and I myself have seen instances of it, that one person may be the medium of communicating such contagious diseases as measles, and the exanthemata generally, to a second, without any symptom of the complaint being discoverable in the first. If this be true as to the exanthemata, may it not be equally so with regard to septicæmia? In corroboration of such a view, I shall here quote from a letter received from Sir Robert Christison, who, in connexion with quite another matter, was made acquainted with some of the facts embodied in this communication:—

"The most interesting point is the possibility, which Z.'s case raised, of the septicæmia or pyæmia being communicated intermediately. If this view be not admitted, we are shut in with two alternative conclusions: either that some of the poison adhering to his wife's clothes had been absorbed from some pre-existing wound in the man's person—a very improbable case; or that the phenomena of septicæmia may arise in their most acute form spontaneously—which seems to me, as our information now stands, to be a very bold theory."

The manner in which septicæmia was communicated to those in attendance (immediate or remote) on Mrs G. is susceptible of a more easy explanation.

In the course of administering vaginal and uterine injections, the fingers were brought into contact, twice at least daily, with the irritating and offensive lochia; and in the case of Mrs X. there was an evident breach of the continuity in the forefinger of the right hand, and through this the septic material found ready access by the lymphatics of the forearm and arm to the blood. In Miss X.'s case, though no lesion was observed before the supervention of the more serious local symptoms, this was probably because none was looked for.

The husband and servant received the poison by inhalation of

air loaded with septic matter, and in each case the tonsils were primarily affected; the poison being conveyed from them through the lymphatics to the submaxillary glands.

Passing now to the case of Mrs R., the first and only fatal one that happened after resuming attendance on such cases, I was then under the firm impression, that no risk could ensue, after taking such measures as I have detailed, to prevent it. The explanation, however, now appears to me to have been as follows:—

The cuticle of my hands had become so impregnated and imbued with septic material, and so hardened and thickened by the constant application of strong carbolic acid and other disinfectants, that several weeks must have elapsed (more than three certainly) before complete desquamation and entire removal took place. I need not refer, in confirmation of this view, to the desquamation of such a complaint as scarlatina, during which it is generally believed to be most contagious.

The consequences to those in attendance on Mrs R. are exhibited in the foregoing table. To those in more immediate attendance the same results occurred as in the cases of Mrs and Miss X. In the one group of cases, the septic stuff was conveyed by the lymphatics of the arm and forearm to the axillary and other glands in that situation; and in the other, from the tonsils to the submaxillary glands, profuse suppuration resulting in both.

An interesting point in this sequence, is the fact that the husband of Mrs X. became infected by washing bandages soiled with the discharge from his wife's axilla.

In addition to my own cases, I refer to two others published in the *British Medical Journal* of 17th April 1875, where the symptoms were traced directly to the inoculation of slight wounds or scratches of the forefinger and thumb respectively, with decomposing lochial discharge, and where the one proved fatal in ninety hours from the invasion of the symptoms—the other recovering in six weeks, with the first joint of the thumb stiffened. The symptoms in each case were almost identical with those I have brought under your notice.

Thus, I think we have conclusive evidence that septicæmia may produce what has been termed puerperal fever, which again undoubtedly originates septicæmia, and so "*causa equat* (*et simulat*) *effectum.*"

The same identity may be traced in symptomatology. The similarity of the affection of the constitution in the puerperal and non-puerperal cases will have been recognised during the recital of the preceding cases, and the local symptoms vary only according to the seat of inoculation.

In briefly referring to the pathology and morbid anatomy, it must be borne in mind that in puerperal cases the phenomena of septicæmia will always be modified, because of the peculiar condition in which the woman is placed. After the birth of the

child, her blood is in a state of hyperinosis, and hence the serious risk of the deposition of fibrine in the form of thrombosis of the uterine vessels. Lactation and uterine involution follow closely on labour, and thus we have the woman's blood and tissues in a most inflammable condition, which it requires but little to ignite. Besides this, from the greater liability of such an extensive and important structure as the peritoneum to become affected, the prognosis becomes much more unfavourable in the puerperal than in the simple or surgical cases. But apart from these modifications, the difference is one of degree, not of kind. In both we have evidences of inflammation in the various textures anatomically composing the part affected, and it is the generally received opinion that there is no appreciable difference in the results in the two forms. In both we have the same nerve irritation and lymphangitis, the same exudation from the dilated capillaries; first of serum and lymph, and afterwards of leucocytes, the same phlebitis and thrombosis, the same inflammation of the cellular and muscular tissues, and finally, in the more malignant forms, the same gangrene and necrosis.

Thus, from combined clinical observation and experimentation on animals, and from the evidence attainable from symptomatology, pathology, and morbid anatomy, we are justified in regarding puerperal fever and septicæmia as one and the same disease.

This contribution would fall short of its object, were I not to make a brief reference to the prevention and treatment of the puerperal form. It is now an established fact, that pyæmia and septicæmia have in a great measure disappeared from the wards of our hospitals since the introduction of antiseptic surgery; and if this be so prophylactic in the surgical form, it ought to be equally so in the puerperal.

On again resuming practice after my three weeks' absence, I never went to a case of labour without carrying with me carbolic oil, with which I lubricated the fingers of my right hand before each vaginal examination.

Finding, however, that this was still insufficient to protect against septic communication and inoculation, I resorted to a more vigorous and complete system of manual disinfection. Before using the carbolic oil, I carefully washed both hands with Liquor Chlori (P. B.), and, after roughly drying them, made a complete and prolonged inunction with the oil as far as the wrists, thus allowing time for the epidermis to get thoroughly soaked before the examination was made.

After the employment of these precautions, no bad symptom ever supervened in any of the forty cases which have since been delivered under my care.

ARTICLE III.—*Endoarteritis Chronica Deformans, and its Relation to Rupture of the Heart.* By JOHN STEVENSON, M.B., Forfar.

THE case I am about to relate demonstrates most clearly the relation between a dangerous lesion of a vital organ and its proximate cause. I am indebted to Mr Alexander, surgeon, Forfar, for the notes of the case, and permission to make the post-mortem examination.

R. C., mason, aged 65 years, was seized with a violent pain across the pit of the stomach on the night of Friday, 28th April 1876. On being called to the case, Mr Alexander found him sitting up, and suffering much from a pain, described as intermittent, and felt most severely over the region of the liver. Patient states he went to bed pretty well, and awoke suddenly complaining of pain. After taking 10 grains P. ipecac. co., he went to bed, and remained quiet till 6 A.M., when he rose as usual, but did not go to work, although he declared himself pretty well, and even went up stairs without feeling anything unusual. At 10.30 A.M., he said he felt sick, sat down in a chair, his clothes being on, and there, in an instant, expired. He is said to have suffered from acute rheumatism twenty-seven years ago, and to have used spirituous liquors freely, and often in excess.

Autopsy, ten hours after death.—The body is spare, but the muscular system is pretty well developed, and rigor mortis is well pronounced. There is distinct arcus senilis, and the radials are perceptibly rigid.

Abdomen.—So far as examined, appeared natural.

Thorax.—Both lungs are pretty extensively adherent to the thoracic walls behind, but on section their substance appears normal, and more deeply pigmented than usual. When the sac of the pericardium was opened, a quantity of serous fluid escaped, tinged with blood, and a clot was found filling up its entire cavity. The blood was firmly coagulated, and covered all the heart, except a small part near the apex; it was thicker behind than in front. The source of the hæmorrhage was carefully looked for after the clots—weighing at least 1 lb.—had been removed, but was not discovered; the heart was then removed; a quantity of venous blood gushed from the great veins as they were divided. The organ was then washed and examined. There was a considerable quantity of fat in the sinus circularis and on the front, but not sufficient to interfere to any great extent with the function of the organ. On the anterior surface, near the apex, were observed several cracks on each side of the septum ventriculorum, radiating in a direction downwards and outwards, scarcely perceptible except on close inspection. There were three or four, measuring from a third to half an inch. They looked like simple cracks or rents in the visceral layer of pericardium. One was situated

on the right and several on the left side. The rent on the right ventricle is long enough to allow the tip of the finger to be seen through it, if the finger be made to stretch the opening from within. Through two openings in the left ventricle a probe readily finds its way upwards into the ventricle, and appears between two columnæ carnæ. Opposite the place of rupture, and on the inner aspect of the wall of the left ventricle, the endocardium appeared to be awanting. The place was covered with a thin, irregular layer of firmly adherent clot, firm in consistence and decolorized on the surface, about the size of a shilling. Under it the muscular substance formed an irregular surface, and was soft. When the wall of the ventricle was divided at the seat of the largest rupture, the softened area was all covered inside by a firmly adherent clot; and near this, in the muscular tissue, was an extravasation about the size of a millet-seed. Here the muscular substance felt soft and friable. The auricles appear thin, flaccid, and translucent. Both ventricles were empty; the wall of the right measured a quarter inch in thickness, that of the left half an inch. The general colour is not altered except where rupture has occurred; here it is darker than elsewhere. The endocardium is not thickened in patches, and there is no lymph on the pericardium. The aortic valves are competent and healthy; the mitral presents here and there local thickening. The calibre of the aorta appears larger than normal, and near its origin are a few atheromatous swellings, none of which seem to have burst.

Coronary Artery.—This vessel appeared healthy, except at its origin, and near the place of rupture. In both places, and for a very short distance, the calibre of the vessel is encroached upon by chronic inflammatory swelling of the inner coat (atheroma). It does not appear, however, that the swelling near its origin causes any great narrowing. The reverse is the case near the seat of rupture. Here we find an atheromatous swelling, about one-eighth part of an inch in length, so projecting into the vessel as almost to occlude it. The place where the rupture has occurred would correspond to the distribution of this vessel. On making a transverse section of the diseased vessel, and measuring by a micrometer, it was found that a vessel which normally had a calibre of ·078 in. by ·052 in. was reduced to ·041 in. by ·019 in.

Microscopic Examination of Muscular Tissue.—Right Ventricle.—The striæ are distinct and well marked; nearly all present more or less distinct rows of pigment granules, running from the muscle nuclei parallel to the length of the fibre. The nuclei themselves appear normal; none with fatty molecules in their protoplasm. (Examined in glycerine.)

Left Ventricle.—Here many of the fibres are in a state of advanced BROWN ATROPHY; but for the most part the fibres seem normal, both as to appearance of nuclei and striations. In those parts where the nuclei are obscured by granules, the striæ have

either disappeared or are very faintly marked. (Examined in glycerine.)

Septum Ventriculorum.—Here nearly all the fibres have well-pronounced normal characters; a few exhibit commencing deposit round the nuclei.

Softened cardiac wall at the seat of rupture.—The fibres are uniformly stained with hæmatine, exhibiting rows of blood-discs between individual fibres. (Examined in glycerine.)

Another specimen was examined in serous fluid, in which the striæ, if they exist, are much more easily defined. The staining was not now so marked; nearly all had lost their striations. None had undergone complete or even advanced fatty degeneration; but all seemed to be narrower than usual, homogenous in texture, and to have granules around their nuclei. A few showed small granules of fat, but none the large, highly-refractive oil-drops met with in advanced fatty degeneration.

Remarks.—The facts above detailed seem to point to some such sequence of events as the following:—A small branch of the coronary artery becomes affected with annular thickening of the tunica intima, the result of some cause or causes at present imperfectly known. This produces considerable narrowing of the calibre of the vessel, and a consequent diminished supply of pabulum to the circumscribed region of tissue beyond. As the amount of work required is in nowise diminished—the heart as a whole being the hardest-worked muscle in the body—the primitive muscular fasciculi begin to undergo retrogressive change. They become thinner and loose, their striæ thus returning to a condition resembling that which occurs in one stage of their formation, before the striæ have appeared, and while they are yet contractile fibre-cells. If the balance of waste and supply be not now restored, further changes take place. Rows of pigment granules appear, corresponding in direction with the axis of the fibre, beginning around the nucleus, then between the primitive fibrillæ. This marks the stage of metamorphosis, when the tissue begins to resolve itself into its component parts. The effect of all this is that the diseased area can no longer offer the required resistance to the blood in the ventricle, and begins to yield to pressure from within. It has been said that the endocardium *per se* resembles in all respects, not only the lining membrane of the arterial system, but that it is composed of the entire number of coats of which that system is made up (F. Schweigger-Seidel, in Stricker's Manual of Histology, tr.), and its diseases are known to be similar. There is, however, no strong fibrous adventitia, such as exists in the aorta, and the blood-supply of the layers of the endocardium is from the coronary artery.[1] When, therefore, the blood-supply of this membrane is cut off or curtailed from behind, and pressure is exerted on it from within, tending to cause nar-

[1] Manual of Human and Compar. Histology, Syd. Soc. tr., p. 225.

rowing of its capillaries by stretching, it is easy to understand how it will offer no great or continued resistance, and consequently rupture takes place over the weakened part. The blood-corpuscles then force their way between the primitive fibres of the muscle, where they were found lying in rows under the microscope, until the pericardium is reached, when, similar causes tending to weaken this structure, it tears in one or more places; and as the blood passes in the direction of least resistance, the contraction of the ventricle forces the blood through the rent, and death is often instantaneous. How long this perforation takes to occur cannot be determined, but cases are on record where coagulation of the blood has delayed the fatal issue. Even in my own case, I found the edges of the rent inside the ventricle surrounded by firmly-coagulated and adherent blood-clot; and it has even been noticed that nature has attempted to set up adhesive inflammation at the point of rupture between the visceral and parietal layers of pericardium.[1]

Multiple rupture of both ventricles is rare. In twenty-eight cases of this fatal accident, collected by Dr Quain, it is not mentioned that one presented rupture of both ventricles; while, on the authority of M. Olivier, eight cases of multiple rupture are recorded as having occurred amongst forty-eight cases of fatal ruptures of the heart. Laennec regarded this dangerous lesion as almost always the result of ulceration of the ventricular parietes. Dr Quain, in remarking upon a case brought before the Pathological Society of London on 19th April 1864, allowed that inanition might produce a general weakening and softening of the heart, which would induce its sudden stopping; but rupture was caused by local softening of some small portion, and not by a general degeneration. *He thought the rupture was produced by disease of the artery leading to the softened part of the heart.* The case here recorded demonstrates the correctness of this opinion beyond a doubt, and shows in addition that it is not at all necessary that the intima over the diseased part should give way, the contents of the abscess be discharged, and a thrombus sufficient to plug the vessel form, before rupture can occur, as insisted on by Professor Rindfleisch, who regards atheromatous degeneration of the coronary arteries, with plugging of their larger branches by a thrombus, as in every instance the cause of this dangerous lesion.[2]

That rupture is not more frequently observed in connexion with complete fatty degeneration of the muscular substance of the heart, is probably owing to the fact, that in this case the deteriorated state of the organ is but an expression of the low nutritive activity of the tissues in general, depending primarily on an unhealthy or impoverished state of the blood, which a variety of causes may have contributed to establish. In this case,

[1] The *Lancet*, 4th Nov. 1871, Case of Rupture of the Heart.

[2] See his Manual of Pathological Histology, Syd. Soc. tr., vol. i. p. 274.

therefore, the enfeebled heart has less work laid on it than it would have if the full quantity of normal blood were driven into the vessels at each systole, which is the case in local degeneration.

The weakened or lost first sound, the scarcely perceptible apex beat, the general prostration and almost imperceptible pulse, all tend to strengthen this inference; and the conditions of circulation and general nutrition coexisting with rupture are exactly the reverse of all this, as has been already shown. I conceive the method lately invented, and noticed in this Journal, for estimating precisely the number of red blood-corpuscles in a given quantity of blood, will be of great service in enabling us to obtain some notion of the blood and tissue forming powers, and so of the vitality or stamina of the individual patient; information which may be turned to valuable account in forming the prognosis in many diseases attended with or consisting in tissue-degeneration.

ARTICLE IV.—*Cases of Paraplegia.* By T. GRAINGER STEWART, M.D., F.R.C.P.E., Physician to the Royal Infirmary, and Lecturer on Clinical Medicine and on the Practice of Physic, Edinburgh.

(*Continued from page* 135.)

THE remaining cases of this series are less important than the preceding, and may be dismissed after much more brief consideration.

CASE III. *Paraplegia with pain, anæsthesia, and œdema of legs. Treatment with Quinine, Strychnia, and Iron. Recovery.*

In May 1874, A. H., fifty-six years of age, applied for admission to the Royal Infirmary on account of weakness and swelling of the limbs. He said that he had always been healthy till within two months of his admission, and then he noticed nothing wrong, excepting swelling of the feet and legs, with muscular debility. The swelling first attracted his attention, and it was attended by a redness of the skin at first, as well as by numbness and insensibility. On admission, the most careful examination revealed no evidence of disease of heart, liver, kidneys, nor of any anæmia; but the patient suffered from severe pains darting occasionally down the legs, a feeling of coldness of the feet, of formication, and of prickling. The ground felt soft under his feet, and the sensibility to touch was impaired nearly to the knee. Sensibility to pain, heat, and tickling was diminished. Reflex action was greatly diminished in the legs. Voluntary movement was natural everywhere, except in the legs below the knees; but these parts were so palsied that he could not walk and could scarcely stand. Electro-sensibility and contractility were both much diminished. The weakened muscles were flabby, somewhat wasted. There was no tendency to jerking, nor to

rigidity of the muscles. The feet and legs were swollen. The treatment adopted was rest, good diet, local faradization of the limbs, and quinine, strychnia, and iron. Under this he gradually and steadily improved, and in the middle of August, about three months after his admission, he was dismissed quite well.

This case afforded an example of functional[1] paraplegia, probably of peripheral origin, and requires little comment. It was not due to any of the important lesions of the cord, neither was it a result of the diphtheritic or any other constitutional morbid process; and it was happily not an example of that distressing and disappointing paralytic affection which sometimes ushers in locomotor ataxia, and which, by its speedy subsidence, makes the physician hope that his patient is safe until the occurrence of the characteristic symptoms reveals his hopeless condition. In this case the recovery was complete, and seemed to be due to the treatment adopted.

The chief point of interest in this case was the congestion and œdema of the feet and legs, which after careful examination I satisfied myself were not accounted for by the condition of the kidneys, the heart, or the blood, but were clearly of nervous origin. At the very commencement of his illness these symptoms began, for almost the first change he noticed was the redness of the skin. It is well known that such a redness may result from nerve influence. Erb[2] remarks that while much obscurity still hangs over the changes produced by the nerves in the vascular system, certain facts are well established, and among them may be recognised local congestion, and increased redness along with elevation of temperature in the affected (generally paralyzed) parts. This often exists merely temporarily, and is sometimes succeeded by pallor and coldness. As to the way in which it arises, it is certain that it may be produced by section of the cord, and that (as shown by the experiments of Goltz), when such a section has healed, the symptoms disappear. Pathological processes evidently act in a corresponding way, slight and passing injury of the cord leading to temporary redness, more serious lesions, such as occur in spinal hæmorrhage, producing more prolonged congestion. It is, of course, clear that other changes besides such formidable spinal lesions must be capable of producing the condition, though we are not at present able to demonstrate the facts. Although it was from this kind of congestion that our patient suffered, reference may be made to the fact that there is another kind sometimes met with, in which the affected parts are cold, markedly livid, and cyanotic, from extreme atony of the vessels. This may exist without paralysis, and may be attended in a more

[1] Compare Jaccoud's Classification Les Paraplegies et l'Ataxie du Mouvement.

[2] Krankheiten des Rückenmarks, in Ziemssen's Handbuch der Speciellen Pathologie und Therapie, p. 111. See also Leyden's Klinik der Rückenmarks' Krankheiten, vol. i. p. 150.

or less marked degree by the condition known as "glossy skin." Then, also, there occasionally occurs extreme coldness, with remarkable pallor of skin, due to spasmodic contraction of the vessels, arising from irritation of the vasomotor nerves either direct or reflex. In our case, we have no means of determining the exact explanation of the fact, although it evidently belonged to the first of the three groups.

But the congestion was attended and succeeded by dropsy of the paralyzed parts. This symptom continued very distinct for several weeks. It is to Dr Laycock[1] that the profession is indebted for the clear indication of the influence of the nervous system in the production and prevention of dropsies. After a long series of clinical observations, he concluded—"1. That the nervous system as a whole, or else some special division of it, has a direct influence both on the production and prevention of anasarca. 2. That anasarca is produced when innervation is defective. 3. That anasarca is prevented being manifested locally when the general causes are in operation, by more vigorous, because more healthy, innervation of the exempted tissues." There are other very interesting inferences, but it is unnecessary at present to adduce more than these. This case was one of many in which I have had occasion to verify Dr Laycock's conclusions. I rather think—although my notes do not mention the fact—that the case also illustrated a point made out by Dr Handfield Jones,[2] viz., that the dropsical swelling got worse during the night when the patient was in bed, and rather improved during the day when he was up.

CASE IV. *Paraplegia, with numbness, hyperæsthesia, muscular paralysis, and twitching; probably due to exposure and damp; Treatment with Ergot, afterwards with Strychnia. Recovery.*

R. S. was admitted to the Royal Infirmary, 17th August 1874, complaining of want of power in the legs. He was a stout, full-bodied man, a blacksmith by trade, and about 45 years of age. He stated he had enjoyed perfect health until a week before admission; had had no sore throat nor other illness. He had been rather intemperate at times, but ascribed his illness to his having slept several successive nights in a damp bed.

On the 10th of August he went to his workshop as usual, but found that he was unable to do any work, because he could not control the muscles of his arm so as to wield the hammer, and his legs were weak and tremulous. He left his work after an hour and a half, and sauntered about the town. During the week he became worse day by day, and was soon unable to walk, while a feeling of numbness in hands and feet increased, *pari passu*, with the muscular debility.

[1] Clinical Inquiries into the Influence of the Nervous System on the Production and Prevention of Dropsies —*Edinburgh Medical Journal*, 1866, p. 775.

[2] Functional Diseases of the Nervous System, 2d ed., p. 128.

On admission he had sensation of numbness and cold in the hands and feet, and in these parts there was some excess of sensibility to different kinds of impressions. The special senses, the muscular sense, and electric sensibility, were natural. The reflex actions produced by tickling the soles of the feet were excessive. Voluntary motion was fair in the hands, but greatly impaired in the legs. He was unable to walk or stand, the knees giving way under him, though, when in the recumbent position, he could kick out pretty well. The muscles were well nourished, but they twitched on the slightest irritation. There was no affection of the bladder or rectum. The legs, although feeling cold to himself, were warm. There was no trophic change. The cerebral and mental functions were normal, excepting that sleep was disturbed.

On his admission he got four doses of 20 minims of liquid extract of ergot, which was followed by marked and rapid increase of the symptoms. The medicine was then stopped, and liquor strychniæ given instead. Under it rapid and steady improvement took place, and within two months of the commencement of his illness the patient was quite well.

The first point worthy of comment in this case is the cause of the attack. The patient ascribed his illness to the fact that he had been led, by domestic circumstances, to occupy for several successive nights a damp bed. Of the efficiency of cold and damp as a cause of spinal disease there can be no doubt. Cases frequently come under observation in which the malady is due to such exposure, the patient having fallen into water, or slept in damp clothes or on wet ground, or worked in snow or rain; but of the precise way in which cold acts we know nothing. While it is true that Feinberg has (as quoted by Leyden)[1] proved, experimentally, that myelitis may be artificially produced by greatly lowering the temperature of the cord; it is obvious that such a lowering cannot exist in all the cases in which cold induces spinal symptoms. It is probable that it produces its effects through the peripheral nerves, in a manner akin to that in which the beneficial effects of the cautery are brought about. But we certainly have no means of explaining either the fact that, in one case the membranes, in another the cord, in one case the anterior, in another the posterior columns, are the seat of the change, nor that in one case the functions are exalted, in another they are depressed. For the diseases of the cord ascribed to cold are very various, including, according to Erb,[2] spinal meningitis, myelitis, locomotor ataxia, infantile paralysis, and tetanus, and, doubtless, along with them, many less formidable affections.

The symptoms presented by our patient were very peculiar, combining, as they did, evidences of excess with evidences of defect of function. For while there was feeling of numbness in the affected parts, there was also hyperæsthesia; and while there

[1] *Op. cit.*, vol. i. p. 171. [2] *Op. cit.*, p. 151.

was want of motor power, the muscles jerked on the slightest irritation. The whole history indicated that the case must, like the last, be referred to the functional group; but, in the present state of our knowledge, it would be unsatisfactory to speculate as to the actual condition of the nervous system. Certainly the results of the treatment were very satisfactory, and of considerable practical interest. There seemed distinct enough indications for the employment of ergot, in accordance with the rules laid down by Brown-Séquard.[1] He says—1*st*, Ergot must be employed in paraplegia in cases attended with irritation of motor, sensitive, or vasomotor nerves, viz., in congestion or inflammation of the spinal cord, or its meninges. 2*d*, Ergot must be avoided as an agent only able to increase the paralysis in cases of paraplegia without symptoms of irritation, such as cases of reflex paraplegia, or of non-inflammatory softening of the spinal cord. With such signs of irritation as our patient presented, one would certainly have concluded, according to these rules, that the ergot should have been useful. But it proved quite otherwise; and, after a few doses, had to be discontinued, as it was manifestly proving injurious. Turning, again, to the rules laid down by the same distinguished authority for the use of strychnia, it appears that that remedy should have been most unsuitable. For strychnia, says he, should, 1*st*, be employed in those cases of paraplegia in which there is no sign of irritation or of increase of the vital properties of the spinal cord, such as cases of reflex paraplegia and white softening. 2*d*, It ought to be avoided as a most dangerous poison in those cases of paraplegia in which there are signs of congestion or inflammation of the spinal cord or its membranes. In these cases strychnia can only increase the cause of the paralysis. In our case therefore this remedy might have seemed contra-indicated. But experience shows that ergot of rye and the pre-preparations of nux vomica suit opposite classes of cases; and it was therefore right to try the latter when the former had aggravated the symptoms. Its beneficial effects were alike powerful and speedy, and the result shows that strychnia may prove eminently beneficial, even in some cases where irritative symptoms exist.

ARTICLE V.—*A New Method of Wound-Drainage.* By JOHN CHIENE, F.R.C.S., F.R.S.E.; Assistant-Surgeon Edinburgh Royal Infirmary; Lecturer on Surgery Edinburgh School of Medicine.

(*Read before the Medico-Chirurgical Society of Edinburgh, 5th July.*)

THE method of wound-drainage which is now to be described was the subject of a lecture delivered by me, on the 29th of May 1876, to the University Class of Clinical Surgery during Mr Lister's

[1] Paralysis of the Lower Extremities, p. 111.

absence at the General Medical Council. It is brought before the Society to-night, as the method of drainage which was then described has fulfilled the expectations then formed of it.

Acknowledging the undoubted advantages of the drainage-tube as regards efficiency, I have long felt its disadvantages; for instance, its interference with rapid healing throughout the whole extent of the wound; the irritation it not unfrequently caused by its presence as a foreign body; the blackening of the protective, showing that irritating compounds were always present in the rubber, however pure; the tendency to regurgitation of air along the elastic tube during the dressing, thereby increasing the danger of mischief passing into the depths of the wound; the necessity of dressing a case solely in order to shorten the tube; and the impossibility of being able properly to estimate the rate at which this should be done. These are self-evident evils, and their removal has for some time occupied my attention.

It may also be observed that a tubular drain is not an essential to efficient drainage. The drainage-tube acts when blocked, the discharge passing along the outside of the tube and soaking through the blood-clot or granulations which so frequently fill its cavity.

I have myself seen old field-drains when lifted filled with vegetable growths and still acting perfectly, the water making its way through the obstruction or along the outer surface of the hollow tiles. To observe how carelessly drainers lay the hollow tiles, leaving often considerable intervals between each, is further proof, if need be, of the continuity of the tubing not being a necessity. I have lately been informed that, in out-of-the-way places in Scotland where drain-tiles are not easily obtained, branches of trees are laid in their stead, and act efficiently in draining moist lands.

The old method of drainage by bringing the silk ligatures out at the corners of the wound, or at an opening made specially for the purpose, as was Mr Syme's practice in the ankle-joint amputation, encouraged me to hope that advantage might be taken of the phenomena of capillarity in order to effect a thorough drain. The further advantage of utilizing capillary forces was apparent, that, inasmuch as they act in opposition to gravity, it would not be necessary to have the outlet of the drain dependent.

During last Christmas holidays, Mr Callender, of St Bartholomew's Hospital, London, when on a visit to this city, informed me that he had stitched together the ends of the drainage-tubes with a catgut stitch, in order to keep them in position for the first three or four days, when the catgut became absorbed, and then the tubing could be gradually removed. The idea then struck me—Why not make the entire drain of catgut instead of guttapercha? If efficient, its advantages in being absorbable were apparent. This might be done in two ways: either by bringing the catgut ligatures out at the corners of the wound instead of cutting them short; or by

passing a skein of catgut through the cavity of the wound before stitching it up. I have made trial of the latter plan.

The first case on which I tried it was Mrs M., on whom it was necessary to amputate by Carden's method at the knee-joint in consequence of a recurrent sarcoma of the tibia. The operation was performed on the 20th of April 1876. In this case I carried a skein of thick catgut of eighteen threads through the stump, bringing the ends out at the corners of the wound. I passed two rings of drainage-tubing, each half an inch in length, on to the skein, and placed them in position at the outlets of the catgut drain. My object in doing this was that I did not like, on the first trial, to depend entirely on the skein. This drain acted perfectly. The rings were removed on the third day. On the seventh day, after the greater part of the wound was consolidated, and after the incision had healed by the first intention, except at the corners where the ends of the drain issued, I failed in the antiseptic management of the case, and putrefaction occurred, spreading rapidly along the catgut drain, which soon rotted, and was removed on the tenth day. During the time the drain was in position no tension whatever occurred. This case convinced me that further trial was justifiable, and that capillarity was sufficient to carry off the discharges.

The next case was one of amputation at the ankle-joint. J. B., admitted on the 25th of May, a railway truck having run over his right foot, crushing it, and necessitating amputation. In this case I made a counter opening in the posterior and inferior surface of the flap, and, tying at its centre a skein of the finest gut of twenty-four threads with a thread of catgut, I divided it into three equal parts and brought one-third out at each corner of the wound, and the remaining third out at the artificial opening. I then placed in position at the inferior outlet a ring of tubing, omitting it at the other two. The object of this triple arrangement was to test the necessity for tubing at the outlets. I found by the staining on the gauze that free drainage was established at all three openings, showing that the tubing was unnecessary, and that in future entire dependence might be placed on the skein. The tubing was removed on the third day. The ends of the skein became loose between the sixth and tenth days. I am not able to fix the exact date, as the deep dressing was not changed between the sixth and tenth days; on the sixth day the ends of the drain were firmly attached; on the tenth day they were lying loose on the dressing. The stump on the tenth day was firmly consolidated, union by first intention occurring throughout the whole extent of the wound.

The next case on which it was used was an excision of the knee. P. F., operated on on the 31st of May for osseous angular anchylosis, the result of a wound of the knee-joint a year previously. In this case a skein of thirty-two threads of medium gut was passed behind the bones, and a skein of sixteen threads in front of the bones, and the ends of both skeins brought out at the corners of the

wound. The anterior skein was stitched with a thread of chromic-acid gut to the tissues over the femur in order to prevent its displacement. The ends of the drains fell off on the twelfth day. The incision healed by the first intention, except at the corners, from which a slight serous discharge of a yellowish colour continued until the twenty-fifth day at the outer corner, until the thirtieth day at the inner corner. Small portions of the gut came away during the period between the twelfth and thirtieth day, and I am of opinion that, in this case, too thick a drain was used, and that, although absorption removed the greater part of the drain, the quantity of gut was in such excess that some came away on the discharge, and prevented the healing of the corners of the wound at a much earlier period. The wound is now firmly healed.

Another case on which I tried the method was one in which it was necessary to remove a small fatty tumour from the subcutaneous tissue of the upper part of the forearm. In this wound, a small one, I laid two threads of catgut along the wound, bringing them out at the corners before stitching up. In the same patient it was necessary also to remove a painful neuroma over the lower end of the ulna. The depth of the wound was considerable, as compared with its superficial extent; in it I stitched with chromic-acid gut the drain to the bottom of the wound, bringing the ends out at one corner of the wound.

The dressing was reapplied on the second day, and again on the fourth day, when the stitches were removed. The patient was sent home on that day with the drains still in position, and acting efficiently. She returned on the fourteenth day after the operation, when, on removing the dressing, the wounds were healed, the drains having dropped off in the interval. This case illustrates two things: first, the necessity of stitching the drain to the bottom of a deep wound in order to retain it in position; second, that the use of this method materially lessened the number of the dressings, and necessarily the expense; and, further, that the stay of the patient in hospital until the wound was healed was not necessary.

These cases are sufficient to illustrate the advantages of this method of drainage by catgut. It is still on its trial, and my thanks are specially due to Mr Lister, who has kindly put it to further and more extensive test.

The number of threads necessary in each skein will depend on the size and importance of the wound. As I have already said, too large a quantity was used in the case of excision of the knee. In a large wound, as far as I am at present able to judge, eight to sixteen threads should be sufficient in each skein; the number of the skeins depending on the shape and size of the wound. In cases in which very profuse discharge is expected, either in a specially large wound or after a tedious operation, in which the wounded surface is necessarily exposed for a considerable time to the irritation of the carbolic spray, it will be better to increase the

number of separate skeins, stitching them to different parts of the wounded surfaces in order to keep them in position, than to depend on one or two thick skeins. I am led to form this opinion from the result in the case of excision of the knee. If it is ever necessary to use a skein of more than sixteen threads, one thread of catgut prepared in chromic acid should be added to act as a drain, if required, during the absorption and molecular disintegration of the drain. Chromic-acid gut should also be used to stitch the drain in position when such a procedure is necessary.

As regards the thickness of the gut, I have used three thicknesses. The finer the gut the more numerous and the smaller will be the capillary tubes between the threads. The fineness of the gut will not interfere with the capillary action through the threads. For these reasons, I am of opinion that the finest gut should be used; by its use, the better will be the drain for any given thickness of skein.

It may be a question how much of the action is due to capillarity through and between the threads, and how much to the drain acting as a lead to the discharges. Capillarity has, I believe, the chief place.

I have hitherto used the gut prepared in the usual way by soaking in carbolic oil. Simple soaking of the drain in carbolic lotion for a quarter of an hour before using will be sufficient in cases in which prepared gut is not at hand.

As long as the drain is acting, there will be a current of fluid along and around the threads (as well as in them), separating them from the living tissue, by means of which the process of absorption mainly takes place. When the flow ceases, then absorption of the column of fluid will first take place, the living walls of the canal will then reach the threads, and absorption will then commence. If this is a true explanation of what happens, then it is evident that it will not be necessary to use catgut specially prepared (as Mr Lister, for instance, has shown by chromic acid) in order to delay absorption.

Further experiment may show that, in many wounds, all that will be necessary will be to bring the catgut ligatures out at the corners of the wound instead of cutting them short. This was my first idea; but I have been so satisfied with the skein, that I have not yet made trial of it.

I make no allusion in this paper to the use of catgut in draining suppurating wounds, or in wounds not treated antiseptically.

I beg to recommend, as worthy of the notice of the profession, the principle of drainage by utilizing capillary forces through skeins of an absorbable material like catgut, if, by its use, the evils of the drainage-tube, already referred to, are got rid of.

We may now anticipate a time when, with catgut stitches instead of silk, horse-hair, or silver wire, catgut drains instead of indiarubber tubing, and chromic-acid gut fixing together the buttons instead of

silver wire, it will not be necessary to uncover our wounds from first to last during healing, when the deep dressing need never be shifted, and when the outer dressing will only require to be removed when soaked with discharge. The amount of discharge, in its turn, will be reduced to a minimum by the use of an absorbable animal material like catgut instead of non-absorbable foreign bodies like silk, silver wire, and indiarubber.

A greater simplicity in the practical details of the antiseptic treatment of wounds will undoubtedly further the spread of a most revolutionary, and therefore necessarily much opposed, system. Efficient drainage is an essential to success. If the method of drainage which I here advocate is of efficacy equal to the drainage-tube, it certainly is simpler in its application.

ARTICLE VI.—*Personal Experience of Death from Aneurism and Disease of the Heart in the Service: A Clinical Note.* By Surgeon-Major WILLIAM CURRAN, A.M.D.

(*Continued from page* 149.)

CASE IX. *Aneurism of the Arch.*—Drummer J. M'C., æt. 38, twenty-two years' service, is a delicate, broken-down-looking man of intemperate habits and bad character, who only came under my notice casually on the line of march, and who died shortly afterwards, of the disease named above. On arrival at his destination, he complained of cardiac distress and giddiness. A loud bruit was heard at the base, and the general pulsatory thrill of the systole was extensively diffused over the chest, and along the course of the large vessels of the neck. It was noticed that the right pupil remained permanently contracted;[1] indeed, this was the first symptom that attracted my attention to the state of his chest, and I had no difficulty in satisfying myself that he was the subject of an aneurism of the aorta. While undergoing treatment in other hands, all his worst sufferings were increased by an ague which he had brought with him from the Peshawur valley, and against which the usual remedies were tried in vain. He subsequently complained of intense suffocative pain over the region of the heart; very distressing palpitation soon followed, and this was greatly aggravated by the gasping spasmodic character of his breathing. In short, his symptoms almost resembled those that result from an attack of angina, and his strength being completely exhausted by pain, loss of sleep, and want of proper sustenance, he succumbed

[1] My attention was first called to this symptom as a sign of aneurism or other thoracic tumour, by Dr Wm. Moore of Dublin, in the General Hospital in the Phœnix Park, and he was, I believe, the first to dwell upon it as an aid to diagnosis in such cases. This, I may add, was the only instance in which, as far as I can now remember, it occurred in my hands.

suddenly to syncope. On examination of the remains a few hours after death, the body was found to be much emaciated, and the pericardium was distended with a large quantity of coagulated blood. This resulted from the rupture of an aneurism of a large size that occupied the whole of the ascending, and part of the transverse portion of the arch, and which communicated posteriorly with that cavity. The aortic orifice was much dilated, and there was ample evidence of enlargement and hypertrophy of the walls of the left ventricle.

Case X. *Aneurism of the Aorta.*—Private J. P., æt. 36, sixteen years' service, a bandsman in a cavalry regiment, died suddenly out of hospital, and, on looking over his "medical history sheet," I find numerous entries against him for "muscular rheumatism," "chronic rheumatism," and "aortic valve disease." Being placed on the convalescent list, he attended occasionally for inspection, in view to his being ultimately invalided; but meanwhile, the diseased vessel gave way, and he died suddenly in barracks before any aid could be rendered to him. On section, the pericardium was found to be enormously distended with blood, the contents of an aneurism of the arch that had escaped by rupture into it, and one of the semilunar folds was perforated. The inner surface of the aorta was extensively studded with patches of atheroma, and the sac of the aneurism, which was situated just above the valves, and which exhibited two small perforations, might contain a bantam's egg. The heart, which was much thickened everywhere, but especially so on the right side, weighed 17 ounces, and there was no evidence of serious mischief elsewhere in the system.

These cases differ but little from those with which the attendants of large hospitals elsewhere must be so familiar; and scores of similar occurrences might be found recorded in the Transactions of the Pathological and other Societies, or in back files of the professional journals: they form, at best, but a "beggarly account of empty lumber," and their uniformly lethal issue is perhaps their most striking feature. Yet are they not altogether devoid of interest or individuality; and however divergent their details may be, they have this at least in common, that they well illustrate the "glorious uncertainty" that often invests the origin and progress of this fatal malady. In some of these, suspicion was only ripened into certainty by the sudden accession of alarming faintness, the unmistakable accompaniment of internal hæmorrhage, or by the supervention of death itself; and in one, at least, paralysis interposed, to complicate and obscure the diagnosis. In others, the end came with such startling rapidity as left no room for the exercise of a doubtful therapy, and tended to divest that grim visitant of some of his worst horrors; while in all we find ourselves in presence of a lesion, whose gravity it would be impossible to

overrate, and whose very existence must occasionally remain a question of hypothesis or conjecture. That this is so, must be obvious to the most careless looker-on; for more than one of the cases related above went about their ordinary duties like their neighbours, utterly unconscious of danger, and yet these were the subjects of a supervision from which civilians of the same class are entirely exempt. It is very probable that had not a post-mortem been made the rule in the service, some of these, at least, might have been "returned" in the hands of a careless official under other headings; for several of them applied for relief from ailments which in no way pointed to vascular implication, and the appearance of most of them was such as to disarm suspicion, or lead, at best, but to a vague and hesitating belief in their unsoundness.[1] Looking over the records of a regiment of which I was lately in charge, I saw in them an account of a man æt. 38, who had sixteen years' service, and whose only ascertainable infirmity was a very distressing and frequently recurring asthma. He died during one of these attacks; and on examination, an aneurism of the arch, the size of a hen's egg, was found pressing on, and adhering to the trachea, whose interior was firmly lined with fibrin. My local chief, Dr Best, has himself given me notes of some cases that occurred under his care at the Cape, in which I can trace a similar train of symptoms and termination. One of these "was a great sufferer from cough, and later on, from severe paroxysms of dyspnœa." Another "had never complained of being ill, and had scarcely ever been in hospital," yet he fell down dead on the line of march, and a necropsy revealed the usual accessories of a ruptured aorta, and a distended pericardium. A third, "a steady, temperate, and rising sergeant of 29, merely complained of a little cough, and a sense of irritation at the root of the throat, yet did he too die suddenly of hæmorrhage in the act of sipping a glass of ale in his mess;"[2] while a fourth was well enough to indulge in

[1] Apropos of the danger of overlooking or treating too lightly the casual complaints of soldiers, I may mention here an anecdote, which I frequently heard when at Chatham, of a certain member of our department long since deceased, who was supposed to have stood to Mr Dickens for his well-known portrait of Dr Slammer. It runs as follows; and the subject of it, a man of irascible temper, and brusque, perhaps I might add boorish, manners, seemed to have entertained a rooted belief that every soldier who approached him, and who was not the subject of some open visible sore or infirmity, was a schemer. His usual order or prescription in such cases was, "Cup the beggar, cup the beggar;" and this was the only relief afforded a poor fellow who tremblingly applied for aid one morning to our Sangrado. Whether the "beggar" in question was cupped or not, my informant could not say, but he was sent back to barracks, whence, or from the parade that followed, he was soon returned a corpse; and I will only add, by way of comment, that this was the only case of the kind I have seen or heard of in the service.

[2] The bystanders said that three minutes must have elapsed from his exclaiming, on seeing blood issue from the mouth, "Oh! send for the doctor," and his transit into eternity; and this interval is accounted for by the post-mortem, which disclosed "firm adhesions between the walls of the descending

sexual intercourse with his wife, during which, "awful to think of," as Dr Best says, he gave up the ghost. Now in some, if not in all of these, an economical coroner, aided by an "intelligent jury," would probably take what is called a "common-sense view" of such occurrences. Their religious instincts might forbid them to pry too curiously into the mysterious dispensations of an all-ruling Providence; they might plead the "request of friends," the expense to the parish, or the interference of the parson, or the attorney might perhaps step in,[1] and in either case, we might have such verdicts as "Died by the visitation of God," "Natural death," "Bursting a bloodvessel," "Accident," etc. etc. Comment on such sapient rulings is clearly unnecessary; and when I add, that they are simply impossible in the army, I have, I think, said enough to satisfy the most sceptical of the utter fruitlessness of any attempt that is, or that can be, made under existing circumstances at establishing a comparison by statistics, in respect of these ailments, between civil and military life.

The same or a very similar lesson is taught by the sudden deaths of officers in the service. Three instances in point must suffice for our illustration, in one of which only was there even a suspicion of aneurism, and he, poor fellow! only complained of slight dysphagia, and occasional turns of shortness of breath. Feeling uncomfortable during breakfast one morning, he got up to go into the open air, but he had scarcely reached the door than he threw up three-quarters of a teacupful of blood, and, falling forward, he spanned the threshold with his body. In the second instance, a young captain fell down dead in the barrack-square while supervising the drill of his "company;" and in the third, an officer of the same rank gave up the ghost in a ball-room, under circumstances which are more fully detailed by me elsewhere.[2] It was only at the post-mortem that the cause of death in the two latter cases was brought distinctly to light; and had they died in civil life, away from the reach of those influences that necessitate a resort to a public inquiry, it is not improbable but that the social surroundings of their friends may enable them to evade, if so disposed, an inquest, and obtain such general declarations from their

aorta and those of the left bronchus." On opening the former, an oval aperture, about the size of a quill, was found to lead from one into the other, and the size and situation of this communication "were doubtless," as Dr Best hints, "the reason why the man did not expire immediately."

[1] Readers of the "Anti-Jacobin" need scarcely be reminded that this passage is based on Mr Canning's well-known interview or *expostulation* of "The Friend of Humanity and the Knife-Grinder," whereat the former addresses the latter as follows:—

"Tell me, knife-grinder, how came you to grind knives?
Did some rich man tyrannically use you?
Was it the squire? or parson of the parish?
Or the attorney?"

[2] See my paper "On Sudden Deaths," in the Indian Annals of Medical Science for January 1874, p. 359.

ordinary attendant as would suffice for purposes of interment. In the army, such a course would be simply impossible; and I maintain, that the frequency of these cases in the service is greatly enhanced, if it is not absolutely exaggerated, by the publicity their occurrence necessarily entails in it. That men live many years, both in and out of the service, who are the unconscious victims of these terrible complications, need not now be insisted on. A case in point occurs to me, as I write, in the person of an old friend and brother officer who was for years troubled with dyspepsia, constipation, and the evolution of large quantities of inodorous intestinal gas. He died ultimately of mortification of the legs, the result, doubtless, of an embolism; and I have since heard that an examination of the remains brought to light an aneurism of one (or of both?) of the external iliacs, which had, up to that time, *almost* escaped observation. Two other very similar accounts have come under my notice since I began to prepare this paper, which relate the sudden deaths from this disease of "one of the Cistercian monks of the Abbey of Pontigny, . . . just as the English pilgrims were arriving, and he was setting out to meet them;" and of a Colonel Wilson of the Madras Army, while in the act of examining some of his office books. Considering the kind of life the former led, and the circumstances under which the latter died, it may be taken for granted that both were unaware of the gravity of their conditions. And the case of Williams *versus* Somerset may be quoted in support of the views enunciated above, and as evidence of the difficulties sometimes encountered by physicians in their attempts to draw the line between aneurism and other tumours of the thorax. These facts, and others of like import, which must be familiar to my readers, can only admit of one interpretation; and a passing allusion to that, supplemented by some remarks on the tolerance with which the system sometimes supports, or the tendency to cure which these growths often evidence, will enable us to review the whole question in a calmer frame of mind, and with greater tenderness and sympathy for the sufferers, than writers on these diseases always display.

If the diagnosis of external aneurism be at times so difficult as to mislead or baffle the skill of some of our ablest surgeons,[1] what are we to think of those tumours of doubtful origin, irregular progress, and uncertain duration, which are situated deeply within the cavities of the body, and whose contents are variously modified by locality, pressure, and the several other conditions incidental to their surroundings? What but that their discrimination is sometimes beyond the reach of even the most experienced amongst us? and such being the case, no prudent man would undertake "a leap in the dark" in search of a phantom which may elude his grasp at the last moment, or terminate fatally before his eyes, without

[1] See South's Chilius, vol. vii. pp. 201-2; and Lane's edition of Cooper, vol. i. p. 152; consult also the Lancet for 19th December 1874, p. 871.

previous notice. What treatment, I ask, could avail in the case described above, wherein the brain was found to be the seat of a softening, which was in all probability due to an embolism? or in that other case in which an aneurism, discovered after death to be quite outside the main trunk, had eaten its way through the trachea? Had I been so rash or ill-advised as to try galvano-puncture, or other of those wild and fanciful contrivances which come to us occasionally through the medical papers, in either of the cases noted above, on, say, the eve of their dissolution, I might have been brought unfavourably to the notice of my superiors for malpraxis, or saddled with the blame of hastening their deaths in my own regiment. My position would not be a pleasant one in either case; and I am now so satisfied as to the hopelessly incurable character of internal aneurism, as it exists in the service—in other words, as I have seen it—that I view with considerable distrust the ingenious theories propounded by Mr Holmes and others for its arrest by pressure, etc. And were I unfortunately the subject of a subclavian aneurism that would not admit of other treatment, I would rather bow my head in silence, and submit without a murmur to the inevitable, than subject myself to the horrible mutilations suggested by Fergusson. That the usual issue of aneurism is rupture, and the natural termination of that is death, often so awfully sudden as to be quite appalling, is now, unfortunately, too well known to require further illustration here; yet does the *vis medicatrix* sometimes so far assert her sway as to place an obstacle in the way of these contingencies, whereby the first named result is retarded, or other diseases are evoked, which, of themselves, ultimately cut short life.[1] A paper was read on the 27th of October last, at the Medico-Chirurgical Society of London, in which were given the particulars of a case of this nature, that died from exhaustion after the tumour had been punctured, on the supposition of its being a renal cyst, and in which an "aneurism was found to occupy the whole left side of the abdominal cavity from the diaphragm to the iliac fossa; the peritoneum was stretched over it, . . . and the organs were displaced and compressed."[2] Yet this man died of exhaustion, just as he might have done under the influence of any other chronic or weakening malady; and I am enabled through the courtesy of colleagues, to glance here at other cases which exhibit this kind of long-suffering on the part of that disease in even a more striking light. In one of these, a man of twenty-nine years of age was for many weeks under treatment, with symptoms that indicated considerable hepatic enlargement, and these were soon followed by a protrusion from behind, in which the last three ribs were implicated, that resembled an abscess. It lacked, however, some of the more characteristic features of this, and the persistence of an obscure lumbar pain, which no remedies could

[1] See Lane's Cooper, as above, vol. i. p. 157.
[2] See Lancet for 31st October 1874, p. 625.

effectually remove, pointed to the existence of a graver complication. The patient gradually sank from exhaustion, and, on section, an aneurismal tumour, which originated just below the cœliac axis, extended from the diaphragm to near the brim of the right pelvis. In addition to eroding the bodies of five of the vertebræ, and causing absorption of the cancellous structure of the last three ribs, it had produced atrophy of the right kidney, and the sac itself contained rather more than six pounds of organized fibrin and semi-fluid blood. In another case, an invalid for hepatitis, the symptoms were obstinate constipation and acute dorsal pain—the result, doubtless, as my informant, Dr Best, properly adds, of pressure on the colon and the mesenteric plexus; the sufferer succumbed to the combined effects of pain, exhaustion, and inability to appropriate support, and a necropsy disclosed an immense aneurismal dilatation of the abdominal aorta, which had compressed the descending colon, and caused erosion and caries of the four last dorsal and first lumbar vertebræ. In a case that occurred under the care of my old friend and colleague Dr A. H. Fraser, and which terminated, I believe, much in the same way as those described above, "the sac of an aneurism" of the thoracic aorta "was 9 inches in its vertical, and 4½ in its antero-posterior diameter. The clavicle was dislocated upwards, and partly eroded, and the first, second, third, and part of the fourth ribs were destroyed by absorption. The tumour presented all the appearances of a displaced mammary gland;" and a short study of the lessons which these frightful, and yet not, *per se*, necessarily fatal lesions are so calculated to teach, will appropriately bring this, already too lengthy paper, to a close.

That non-interference is one of the foremost of these, need not be insisted on here, for it is quite clear that any attempt at removing the contents by operative means of either of the tumours noted above, would have been productive of the worst consequences, and yet it is equally so that nature was unable, of herself, to get rid of the obstruction. Such being confessedly the case, our first duty lies in obviating the tendency to death—putting off, in a word, the evil day as long as we can—by enjoining rest of body and mind, tranquillizing the circulation by anodynes and gentle depletion, and finally, by supplying such sustenance as may best support the strength, without overloading the stomach or deranging the appetite. Whether the old plan of Valsalva, as it is modified by Mr Tufnell, is capable of meeting these indications, I am unable to say; but sure I am, that soldiers as a class are bad subjects for such restraints as this system requires, and the changes to which they are so liable will, I fear, ever militate against its enforcement on a large scale in the service. "Masterly inactivity," then, implying as it does a watchful regard to all the surroundings of the disease, must guide our practice, and any disquisition as to the causes of aneurism in the army would obviously be a "work of supererogation" in one who, like myself, believes that the same

or similar causes are equally or more prevalent among the civil population of the lower classes than they are among soldiers. These are so abundantly developed in books as to save me the trouble of an irrelevant digression; and I purposely content myself with pointing here to two great facts, which will best supply their own commentary, and whose bearings on this question appear to me to be strangely overlooked. These are, I need scarcely say, the far greater predominance of this disease in man than in woman, and the equally well-ascertained one of its much greater frequency in the aorta throughout its whole course, but more especially so in its upper branches, than in the smaller vessels of the trunk and the extremities.[1] Judging from analogy, and taking into account the greater exposure and strain to which the latter are subjected, we might almost expect the contrary, yet it is not so; and I am not aware that colliers, miners, navvies, *et hoc genus omne,* are more liable to derangements of this kind than their brethren who engage in agricultural and other kindred pursuits. If we but look back through the area of our own individual experience, we will find that, in a majority of cases, the subjects of this disorder can rarely give any satisfactory account of its origin. Some are entirely unconscious of its existence, others suffer from ailments which conceal or override its progress; and they are few who can ascribe it with certainty to the occurrence of a strain or other unusual exertion. In a small moiety of its subjects, the constitution is so tolerant of its presence as sometimes to impose, as we have seen above, on the ordinary attendant; and cases could be quoted to show that it has often remained unnoticed until it engendered new complications, or indeed such an amount of neighbouring obstructions or irritations as of themselves suffices to bring life to a close. All these considerations appear to me to point primarily to a systemic as distinguished from a military origin; and as to the influence of syphilis, intemperance, mercury, tobacco-smoking, and the

[1] The facts here referred to—for such they undoubtedly are—appear to me to be clearly deducible from the article "Aneurism" in Lane's Cooper, vol. i. pp. 154–6, as well as from the following Table, which I take from the Registrar-General's Report for 1869, and which I will allow to speak for itself. After mentioning that 595 deaths were caused by this disease during the year, he goes on to say that the great peculiarity in respect of aneurism is, that 457 men and only 138 women died of it. The influence of sex is felt at every age; but no children under 10, and no man or woman above the age of 85, died of aneurism in the year.

	10–	15–	25–	35–	45–	55–	65–	75–
Deaths by Aneurism—								
Of men, ...	1	9	83	144	104	72	36	8
Of women, ...	...	5	19	34	30	23	19	8
Excess of men, . . .	1	4	64	110	74	49	17	...

like, "there is a narrowness in such a notion" that, to my mind, appears fatal to it. Indulgence in these practices is notoriously much greater in civil than it is in military life; and as to the "spurts" or sudden exertions which soldiers are frequently required to undergo, I do not think they can bear any comparison with the sustained labour and excitement that are so much oftener, and so far more continuously, borne by civilians of the same age and class. But even allowing that they do, the assumption of such a cause only begs the whole question, for it implies a cachexia, or an extra liability to this description of disease, on the part of the recruit, which goes to show that the original material was faulty, and that its subject was unsuited, by reason of this infirmity, for the duties, and unable to sustain the burden, of a military life. The fault is not in the latter, but in the former, who took upon himself an office for which he is now proved to be unfit. This is what I have contended for all along, and this, too, is the opinion of almost every senior officer with whom I have conversed on the subject. "The spirit is willing, but the flesh is weak;" and if we would diminish the mortality and invaliding caused by this class of disease in the army, we must tempt, by higher inducements, a better description of the "rough material" to our standards, or resort, like other nations, to "untilled fields and pastures new."

Note.—That Morgagni of India, the late Allan Webb, describing in his *Pathologia Indica* "the specimens of diseased heart" that were sent to the Medical Museum at Calcutta, says, pp. 66-7, that "the structural changes" seen by him, "whether derived from Europeans or natives of India, *have had their origin in inflammation.*" And further on, he answers the question, "Who amongst us have been led to think that *carditis* is a common disease in India?" by adding that "*its frequent occurrence I believe to be a prominent feature in the general pathology of the country, and one hitherto most unaccountably overlooked.*" The italics are mine, and they are more than justified by the surprise which this extraordinary statement has caused me. In very few instances—indeed, out of the scores perhaps I might add hundreds, of post-mortems at which I have assisted in this country—have I seen carditis *pure and simple* to be a "prominent feature," and that too is the experience of colleagues who have had more experience on these points than I can pretend to. But I am unwilling to introduce a controversial element into this little review; and it is just possible that Dr Webb may have attached a significance to this phrase which others are unable to accept or endorse. I give it, therefore, as it stands, without further criticism or comment, and I am quite content to leave my views, as to the pathology of cardiac disease in India, in the hands of those senior colleagues who have served in the country, who are guided more by observation and experience than by the requirements of theory, or the adventitious accumulations of a college museum.

ARTICLE VII.—*A Successful Case of Ovariotomy; Tumour Sessile; Cauterization.* By I. MOSSOP, L.R.C.S.E., etc., Bradford.

(*Read before the Obstetrical Society of Edinburgh, 14th June.*)

J. D., æt. 39, unmarried, rather spare woman, average height, slightly sallow complexion; for a dozen years has had poor health; catamenia regular; had suffered much from a pain in her left side for several years past, which, however, seems to have been chiefly due to gastric irritation; has been repeatedly under my care for dyspepsia. In June and July 1874, she was treated by me for gastric disturbance, with general debility; at that time no perceptible abdominal enlargement was observed, nor did it exist, so far as I am able to ascertain. On the 31st August 1875, she again consulted me for severe pain in the left flank, when I noticed a considerable enlargement of the body, and requested her to be in bed on the following day, so that I might make a careful examination of the abdomen.

On palpation and percussion, I made out a tumour of considerable size, the great bulk of which was on the left side of the body, though a well-defined sulcus existed in the tumour about the middle line of the body, and rather a hard ridge was felt running obliquely upwards from below the umbilicus towards the left hypochondrium. The irregular shape of the tumour precluded me from taking accurate measurements; dulness existed in every part, and a feeling of crepitation was detected over a limited area on its left side; and on auscultating, a friction sound was heard. I was unable to satisfy myself as to the existence of fluctuation at this time (it afterwards became more evident); this doubt, together with the immobility of the tumour, its irregular outline, and sense of resistance and tenderness on pressure, led me to be somewhat dubious as to its nature, though from its unilateral character, I strongly suspected it to be ovarian.

On account of the severity of the pain, I adopted a palliative treatment—subcutaneous injections of morphia, belladonna liniment, poppy-head fomentations,—with only transient relief; the tumour increased in size, and I deemed it advisable to examine the condition of the uterus, which was found high up, the os looking directly backwards, so that its long axis lay horizontally instead of vertically. On account of its position, and the narrowness of the vaginal orifice, I was unable to introduce the uterine sound, but was satisfied as to its mobility and size; then, by means of the aspirator, I emptied a small cyst, the contents of which had the characteristic appearances, and were highly albuminous. As the tumour enlarged, fluctuation could be distinctly felt, and my friend, Mr Miall, who now saw the case with me, confirmed my opinion as to its ovarian origin. We then consulted with Mr Meade on the advisability of operative interference; he suggested waiting a few

weeks longer, and recommended the application of half-a-dozen leeches, which was accordingly done, but without any marked benefit. The intensity of the pain, and the hourly increasing feebleness of the patient, together with the rapid growth of the tumour, led me soon, with the consent of patient and friends, to decide upon ovariotomy as being the only possible means of cure.

On the 31st of December 1875, in the presence of the gentlemen before mentioned, I proceeded to operate. A dose of castor-oil was given on the previous day, and an injection of soap and water in the morning. The body was well washed with soap and water and clad in flannel. The abdominal measurements were 36 inches round the umbilicus, and 16½ inches from sternum to pubes. The bladder being emptied, the patient was placed upon the table, and the waterproof sheet adjusted, with a hole cut in it so as to expose only the tumour. Chloroform was then administered, which, however, she did not bear very well, for vomiting came on when she was scarcely over. An incision four inches in length was made in the linea alba, which afterwards had to be extended upwards for about an inch and three-quarters, so as to facilitate the removal of the cyst. After dipping my left hand in a weak solution of carbolic acid, I passed it within the abdomen, and found the cyst adherent anteriorly, the adhesions being friable, and yielding without much difficulty. Having carefully separated the tumour from the peritoneal wall, I tapped it by means of Spencer Wells's trocar, and much difficulty was experienced at first in getting it into a sufficiently large cyst, so as to reduce the size of the tumour. At last, in piercing it with the trocar pointing a little downwards and backwards, a moderately large cyst was found and emptied, which reduced the size of the tumour, and by the aid of traction-forceps the whole was soon withdrawn. No pedicle was found, the cyst being sessile on the broad ligament. I had a variety of clamps at hand, but the one I used was what is well known as Henry Smith's clamp for piles. It was applied barely an inch from the attachment, and the cyst separated, leaving about half an inch external to the clamp, to which the actual cautery was applied, and the tissue seared level with the clamp. Two small vessels spouted a little when the clamp was removed; they were ligatured, and the stump returned. A cord had been previously passed through the stump, so as to retain a hold of it for a few minutes in the event of further bleeding. A little oozing came from the cut surfaces of the abdominal wound, which soon ceased, and the clots were carefully removed from the abdominal cavity.

The bowels were kept from protruding by warm sponges, a long piece of sponge being kept within the wound, so as to protect the bowel in stitching, and withdrawn before the last two stitches were put in. In closing the wound silk sutures were used, five deep ones, and four superficial.

The operation lasted five minutes short of an hour, commencing at 11.45 A.M., and ending at 12.40 P.M. The patient was now removed to bed, and a grain of opium given by the mouth, a hot bottle to the feet, and plenty of clothes; lint dipped in carbolic lotion (1 to 40) applied to the wound, cotton wool and a few towels placed on the abdomen, and a broad bandage applied. In three-quarters of an hour the pulse was 100. Ice, and a little brandy was given, since much prostration and sickness had followed the administration of the chloroform.

7 P.M.—Pulse, 116; temp. $100\frac{1}{5}°$; resp. 30; urine, 6 oz. Shooting pains in the left side; surface of body moist and warm.

11 P.M.—Pulse, 120; resp. 28; temp. $99\frac{4}{5}°$. Drowsy, anxious to sleep; pains under left breast continue. Gave $\frac{1}{4}$ gr. morphia suppository. Ordered injection of beef-tea, with a little brandy ($\frac{1}{2}$ pint to be given at 1.30 A.M.).

1*st Jan.* 1876.—5.30 A.M.—Revived; has slept half an hour at a time, besides dozing. No vomiting; pain easier. Pulse, 124; resp. 24; temp. $100\frac{2}{5}°$. Drew off 7 oz. urine. Repeated $\frac{1}{4}$ gr. morphia suppository.

12.15 P.M.—Pain easier. Pulse, 120; resp. 24; temp. $100\frac{1}{5}°$. Slept at intervals. Continued beef-tea and brandy injection. Gave suppository. Urine, 8 oz.

6 P.M.—Skin dry, tongue moist. No return of pain. Urine, 9 oz. Slept three-quarters of an hour at a time. Pulse, 120; resp. 24; temp. 101°. Had beef-tea and brandy injection.

11.30 P.M.—No change. Pulse, 120; temp. 100°. Urine, 8 oz.

2*d.*—6.30 A.M.—Has been somewhat restless. Vomited slightly, dark bilious matter. Pain increased. Perspires moderately. Pulse, 120; resp. 28; temp. $100\frac{1}{5}°$. Urine, 9 oz. Gave $\frac{1}{4}$ gr. morph. suppository. Ordered Seltzer water and ice, and beef-tea injection.

12.30 P.M.—Vomited once; has been easier ever since. Pulse, 112; resp. 22; temp. 100°. Urine, 10 oz. No tympanitis.

11.45 P.M.—Rests quietly. No vomiting. Complains only of soreness across the body. Passed flatus. Pulse, 96; resp. 21; temp. $99\frac{3}{5}°$. Urine, 6 oz. Suppository.

3*d.*—8 A.M.—Pulse, 96; resp. 20; temp. $99\frac{4}{5}°$. Rested calmly. Complains of pain in left elbow, probably neuralgic.

2 P.M.—Pulse, 96; resp. 20; temp. 100°. Cheerful. Ordered beef-tea by mouth every hour.

9.30 P.M.—Has not slept much. Stomach borne beef-tea well. Two tablespoonfuls of beef-tea every hour and a half, with a little gruel between. Seltzer water and ice, with a little brandy added. Urine, 15 oz., slightly turbid, and ammoniacal.

4*th.*—8.30 A.M.—Slept four hours. Has taken during the night half a pint of beef-tea and half a pint of gruel. Pulse, 84; temp. $98\frac{3}{5}°$. Urine, 18 oz.

4 P.M.—Examined and dressed wound; found it quite closed, and, with the exception of a little suppuration round one of the

sutures, looking well; changed linen. Pulse, 84; temp. 98$\frac{3}{5}$°. Urine, 16 oz., still cloudy and strongly ammoniacal, with a little deposit of pus, probably a result of the frequent passing of the catheter.

5*th.*—8.30 A.M.—Slept moderately well. Dressed wound. Pulse, 80; temp. 98$\frac{4}{5}$°.

11.30 P.M.—Has taken nourishment well. Iced milk, beef-tea. Urine, 16 oz., still turbid; pulse, 80; temp. 99°.

6*th.*—Restless night; had been coughing, which caused the body to feel sore. Wound looking well.

12 P.M.—Has had a comfortable day, and felt refreshed after an hour's sleep in the afternoon. Pulse, 80; temp. 98$\frac{4}{5}$°. Urine, 16 oz., perhaps less turbid; still contains pus, though less in amount.

7*th.*—9 A.M.—Continues to improve. Removed sutures, with the exception of the two lower ones.

11.30 P.M.—Pulse, 82; temp. 99°. Urine, 17 oz., clearer.

8*th.*—8.30 A.M.—Rested well. Removed remaining sutures. Bed shaken up. Urine, 18 oz., clearer, and very little pus remaining.

9*th.*—Gains strength. Had sole and custard-pudding, which she enjoyed.

10*th.*—Feels stronger. Made water for the first time this afternoon. Wound continues to heal.

12*th.*—Doing well. Bowels have not acted; ordered enema of warm water and castor-oil.

13*th.*—Bowels acted after injection. Taken a mutton-chop, and feels better than she has done for many weeks. Sat up in bed for two hours.

18*th*—Sat up in chair for forty minutes. Gains strength. Bowels act well. Wound healed.

25*th.*—Has been up for three hours, walked frequently round the room. Fast gaining strength.

31*st.*—Has been down stairs for three hours. Began to be unwell to-day.

I have seen the patient at intervals since the last-mentioned date. For a month or two she was troubled with sleeplessness; but, on Monday last (12th June), when I saw her, she said that she felt stronger than she had been for years, and certainly looks healthier than I have ever known her.

The tumour consisted of one large cyst, on whose periphery a great number of smaller cysts, varying in size, were appended. The contents of the different cysts also varied in appearance and consistence, some being filled with a viscid albuminous fluid; others of a gelatinous character, dirty red or yellow in colour. The fluid contents weighed 10 lbs., the solid matter 4$\frac{1}{4}$ lbs., and there was lost about 2 lbs., so that the entire weight of the tumour could not be less than 16 lbs.

ARTICLE VIII.—*On the Etiology and History of Leprosy.* By W. MUNRO, M.D.

Introductory.—Some years ago, while in St Kitts, my attention was called to the subject of leprosy, by the grave allegations made against vaccination by Dr Bakewell, of Trinidad, before the Vaccination Committee of the House of Commons. He stated[1] that leprosy was conveyed by vaccination, and that it was on the increase in Trinidad, and in Demerara, Barbadoes, and Jamaica, quoting the opinions of medical men in the several islands, as given in the Leprosy Report of the Royal College of Physicians (1867), in support of his extraordinary statements, and also that the increase was a direct consequence of the introduction of compulsory vaccination. As Dr Bakewell was at the time Vaccinator-General of Trinidad, and had been physician to the Leper Hospital there, his evidence was calculated to do more harm than such random statements by another man in a lower official position would have done. I therefore thought it worth while to show that he was wrong, and before I left St Kitts did all in my power to prepare myself for doing so. Since then the subject has occupied my attention more or less, although domestic affliction and other causes have delayed the publication of the present paper.

In the first place, to dispose of Dr Bakewell's statements, I may say, 1st, he is contradicted by the very Report he refers to, at least in regard to Trinidad[2] and Barbadoes; while, in Jamaica, although two medical men then thought it on the increase, their opinion is contradicted by a comparison between the censuses of 1861 and 1871, showing that in 1861 there were 778 lepers among 441,264 of a population, while in 1871 there were only 749 in 506,154;[3] or in 1861, 1 in 567; in 1871, 1 in 676 of the population. In other islands it is held to be decreasing, as Tobago. Only in Demerara is it unanimously decided[4] (so far as *mere opinions* can decide such a matter) that it is on the increase; but this is distinctly attributed to the free intercourse of lepers with the healthy since 1838. Immigration of coolies from India is also blamed for the increase; but I can hardly understand how the importation of picked labourers from a country with, so far as the census returns show, 1 leper in 1755[5] can *increase* the number of lepers in a country with 1 in 280.[6] Besides, Demerara is a badly vaccinated colony,[7] so how could vaccination increase leprosy in it?

[1] Report, p. 213.
[2] Leprosy Report of the Royal College of Physicians, pp. 14, 33, 40.
[3] See Milroy's Rep. on Lep. and Yaws in the West Indies, 1873, p. 31.
[4] Coll. Phys. Rep., p. 47.
[5] Calculated by myself from the census returns for India. As many lepers are doubtless omitted in these returns, 1 in 1500 would probably be nearer the truth.
[6] Coll. Phys. Rep., Appendix, pp. 48 and 214. [7] Milroy's Rep., p. 35.

2d, Dr Bakewell admitted that Trinidad was not well vaccinated,[1] only one half of those born being protected in some districts, and in others none at all. *A fortiori,* a better vaccinated island would show a greater increase of leprosy, yet, in Basseterre, St Kitts, I found that from 1st January 1867 to 30th June 1871, the average living births were 280, the average vaccinations 137, the average age when vaccinated 18 months (calculated from 300 vaccinations). But I found that 98 children born died in the first 18 months, thus only 182 were left; so that of these 137 being vaccinated, 45, or 25 per cent., were left unvaccinated under the ordinary operation of the Act of 1854. But in 1854, 504, and in 1862 355, were vaccinated, so that the real number unvaccinated would be less than that given above.

In 1871, from examination of the schools in my district of Basseterre, I found 127 out of 555 without any marks of vaccination;[2] and from careful calculations, made from examination of old documents from 1849, as also of the inmates of the Cunnynghame Hospital, and of the Registrar's books from 1854 to 1870, making proper allowance, according to the St Kitts rate of mortality, for those who had died in the interval, I concluded that about 6500 to 6700 in a population of 8417 were vaccinated. This of course was unsatisfactory as compared with Scotland with 96 per cent. vaccinated,[3] but is better than Dr Bakewell represents Trinidad to be. I may say that I have every reason to believe that the other districts of St Kitts have been almost, if not quite, as well vaccinated as Basseterre.

Yet in St Kitts, taking three periods, 1817, 1854, and 1872, I find that there has been both a relative and absolute decrease in the number of lepers since 1817.

In 1817, every slave was registered according to law; I found, by a careful search through these registers, and a reference to old slaves in every estate where there was any doubt, and also old estate-books, in which slaves registered as "sickly," "diseased," "useless," in the *public* registers, were entered "lepers;" that there were in 1817, 95 lepers at least in 20,149, or 1 in 212; in 1855, the census returns showed 53 in 20,700, or 1 in 390 (no doubt under the real number, as a few would be omitted in taking the census); while in 1872, by special inquiries, aided by my colleagues, the clergymen, the police, and friends living in each district, I could only discover 72 in a population of 27,000, or 1 in 389.

But as it is a fact, which I have no doubt of, from information

[1] Vacc. Rep., pp. 208 and 215.

[2] This was an official examination made by order of the President, in consequence of my having represented to him that the Vaccination Act was not sufficiently operative.

[3] Calculated by me from the Registrar's books.

[4] Lancet, 17th April 1870.

received from the late Dr Swanston (who began practice in St Kitts in 1815), confirmed by examination of old estate-books, and of a number of old slaves (only giving a percentage of under 10 per cent. unvaccinated), that the slave population *was better* vaccinated than that of the present day, leprosy ought to have increased most from 1817 to 1854, while the very contrary was the case. Indeed, had the strict seclusion so much insisted on by slaveowners been carried out to the present day, I firmly believe that there would have been a much greater decrease from 1854 than there has been.

Vaccination was introduced into St Kitts about 1815 ; I find it charged for in estate-books in 1819 ; but, besides that (what Dr Bakewell seemed to know nothing of), inoculation (in itself quite as much calculated to cause leprosy as vaccination) was practised in the colonies at the beginning of the century ; I find it charged for by medical men in estate-books of 1805.

I think I have said enough to show the absurdity of the statement that leprosy has been increased in the West Indies by vaccination.

3d, Dr Bakewell, admits (p. 212) that mosquitoes may convey the poison of leprosy ; yet, because a child, the son of English parents, becomes a leper (p. 207), turns round on vaccination as the *only* explanation. But cases are numerous of Europeans and their children taking leprosy in the tropics when no such cause was possible.

In conclusion, I may say that in my inquiries in St Kitts, I made special notes of this point in every case, and never could see the least reason for believing that vaccination had anything to do with the conveyance of the disease.

I have said somewhat more than I intended on this point, but in Trinidad itself, the practical result of bad vaccination was seen in 1871, when several thousand deaths took place from smallpox, though, in 1867, Dr Bakewell thought it "would hardly be worth the trouble" to vaccinate his own children there (p. 214), while in 1872, the island of St Kitts was exposed for five days to the infection—from a ship whose captain got pratique by saying that there had been no sickness on board—yet not one of the population took the disease. By that time all those found unvaccinated in 1871 had been protected.

I am thus anxious that all that lies in my power should be done to do away with the bad impressions likely to be created by such rash statements as Dr Bakewell's among those living in countries where leprosy is common. For other arguments against these statements, I may refer to Dr Milroy's Report, p. 32 *et seq.* I may say, however, in conclusion, that in the case quoted by Dr Bakewell, in which vaccination is blamed, as given in the College of Physicians' Report, p. 235, by Professor Wilson, there is not one word about the native child (the vaccinifer) having been a leper, and leprosy did not appear till the child was eleven years of age.

Etiology and History.—I think it best to consider the history of leprosy along with its etiology, as I hold it to be a communicable disease from man to man, but that there must always be the greatest difficulty in proving such communicability from cases, from the great length of the period of incubation, extending from under two[1] to eight years.[2] Even cholera, with an incubative stage of a few hours, was long held to be non-communicable; and Pruner, one of the strongest opponents of the contagion of leprosy, would perhaps change his opinions now that the communicability of cholera is admitted, as he founds his opinion against the spread of leprosy over the world being a proof of contagion, on the supposition that cholera is non-contagious, and yet had so spread.[3] Now, I believe that a careful study of the history of leprosy, along with that of the commerce of all nations from the earliest periods of history, shows most irrefragably that leprosy is a communicable disease. It has always arisen in certain parts of the world within the tropics, and spread thence by communication to other parts; and the marked periods of spread have always followed, at an interval of one or two centuries, some great event, by which communication between a formerly infected and a formerly uninfected country was thrown open.

The earliest reference I can find to leprosy is in the Histoire d'Egypt by Henri Brugsch,[4] in which, from a great medical papyrus discovered at Memphis, is mentioned a passage which contains a number of receipts for the cure of diseases of the nature of leprosy (du genre de la lèpre). "This manuscript," says Brugsch, "was composed during the reign of Rameses II. (1350 B.C.), but there is a passage in it which throws back a part of the work to the fifth king of the table of Abydos." The text (of the papyrus) says, "This is the beginning of a collection of receipts for curing the exanthemata (uχet)." Following the quotation, Brugsch shows that it is as ancient as the reign of Husapti, the fifth king of Egypt, who, according to him, reigned about 4200 B.C.[5] But, even at this early period, *negroes* were already "carriers of wood" (p. 16) to the people of Egypt. They were already slaves to them, and this communication between the Egyptians and the negro races has always been kept up. At p. 8, Brugsch says, "At the highest antiquity, these tribes extended to the frontiers of Egypt." During the sixth dynasty (about 3200

[1] E. Wilson, in Coll. Phys. Rep., p. 240. Macnamara on Leprosy, Calcutta, 1866, pp. 21-24.

[2] Danielssen and Boeck, Traité de la Spedalskhed, p. 338.

[3] Pruner, Krankheiten des Orients, p. 172.

[4] Histoire d'Egypt, par Henri Brugsch Bey (Leipzig, 1875), p. 42.

[5] *Ibid.*, p. 179. Of course, this is only an approximative date. Wilkinson only dates Menes, the first king, at probably 2000 to 3000 B.C. (Ancient Egyptians, vol. i. p. 307); but, from Brugsch's calculations, this appears too late. However, these dates are all long anterior to the time of the Jewish exodus—an important point.

B.C.), Brugsch (p. 71) quotes from monumental records to show "the names of several negro countries which already at that period were under the Egyptian rule," and that negroes were in the Egyptian army, as the officers, "se sont efforcés de dresser militairement les negres."

There can be little doubt that the Egyptians, even under their earliest kings, undertook expeditions, and carried back captives from both Africa and Asia,[1] and that negroes even came, of their own accord, to Egypt as servants[2] as far back as Amenemhat IV., about 2250 B.C., and later on, during the nineteenth dynasty. Moses, long before he led out the Israelites, conquered the city of Meröe, in the heart of Ethiopia.[3] Herodotus (lib. ii. c. 31) says that the Nile was known for four months' journey above Elephantine (itself about 1100 miles from the sea), and describes a river in the interior of Lybia "flowing from west to east" (c. 32), which was probably the Niger. His description of the sources of the Nile also, as known to the Egyptians, shows some real knowledge of the lakes lately discovered.

Thus, there was evidently abundant early and continuous communication between the interior of Africa and Egypt, that from the northern interior chiefly consisting of an influx of black servants or slaves. The Egyptians never colonized to the southwards, with one exception,[4] but penetrated to great distances, and returned. Traces of ancient communication still remain, in the similarity of means of hunting, and other things, among the inhabitants of Southern Central Africa to those used by the ancient Egyptians.[5] Even at Lake Ngami this influence is seen, but this must probably be attributed to long subsequent migrations of the tribes of the interior. This communication probably began soon after the arrival of the Egyptians from Asia, whence they originally came,[6] probably as conquerors, and from a more or less nomadic state of life—a state which I have noticed does not seem compatible with the existence of leprosy, as I am not aware that it has ever been observed among any nomadic tribe. Although seen among town Arabs,[7] it is not known in Oman,[8] among the wandering tribes, nor is it mentioned by Layard among the Arabs of Mesopotamia,[9] or by Huc, or Prejevalsky[10] among the Tartar hordes,

[1] See Brugsch, p. 75, 91 ; Wilkinson, vol. i. p. 416, 417 ; and Lepsius, quoted in Humboldt's Cosmos, p. 488, footnote.

[2] Brugsch, pp. 109, 149.

[3] Whiston's Josephus, p. 70.

[4] Herodotus, lib. ii. p. 102.

[5] See Anderson, Lake Ngami, p. 522 ; Livingstone's Zambesi and its Tributaries, pp. 168, 509 ; and Last Journals, vol. ii. pp. 117, 206 ; and Wilkinson, vol. i. pp. 69, 241.

[6] Brugsch, p. 6. Wilkinson, vol. i. p. 302–309.

[7] Buckhardt's Arabia, p. 447, in a Bedouin, but he elsewhere speaks of town Bedouins ; and Dr Claude Bernard of Algeria—private letter.

[8] Wellsted's Arabia, p. 312.

[9] Niebuhr's notice of it only refers to the towns of Yemen and Baghdad, etc.

[10] Mongolia, London, 1876.

or by Kenuan among the Koriaks of Eastern Siberia, while in Africa no notices of it appear in any books of travel except among the settled tribes. Hirsch, in his Historisch. Geograph. Pathologie, does not refer to leprosy among any nomadic tribe. The Bedouins in Egypt are said to be free from it.[1] But as the Egyptians could not have carried leprosy with them to Egypt, and, as I shall hereafter try to show, there is nothing to uphold the idea of Lucretius that it was "morbus qui *propter* flumine Nili gignitur;" as in Northern Central Africa everything has remained *in statu quo* for ages, while in Southern Central Africa migrations have taken place from north to south; as leprosy only exists to a very limited extent in the countries immediately south of Egypt, in some, as Senaar, not at all;[2] as the immigration of negroes from Northern Central Africa to Egypt would be infinitely more likely to cause the propagation of a chronic disease to the Egyptians than the mere inroads of the latter to carry such disease to that centre, I am led to the belief that Egypt first received leprosy from the Soudan and Darfur. This belief is strengthened by noting, from perusal of the works of Livingstone, Baker, New, and Stanley, that leprosy is by no means so common in Southern Central Africa as in Northern, and that those tribes, as the Manganja, among whom it does prevail, are those who have been longest in contact with the Portuguese—themselves a much tainted people. It is unknown around Lake Tanganyika, as Stanley (How I Found Livingstone, p. 532) mentions twenty-five diseases known at Ujiji, but not leprosy; and Livingstone does not speak of it as existing there, or anywhere from the Nyassa[3] people, and the Barotse and Banyai,[4] until the Manyuema, near the Lualaba, were reached.[5] But the Nyassa people came from the west-north-west, and may have brought leprosy with them;[6] and the fact that the Manyuema and Becuana dialects are similar,[7] proves that they also, separated by about 1500 miles, have migrated to great distances. But they have had at least some communication with Portuguese, and doubtless with negroes in their employment, as shown by beads from the west coast being found among them.[8] Between Lake

[1] Coll. Phys. Rep., p. 53.

[2] Hirsch, p. 311. Aubert Roche (Annales d'Hygiene, January 1846) only speaks of it among the mountains of Samen. Pruner, p. 164 (so far erroneously quoted by Hirsch, p. 311), only mentions having seen it "an Abyssiniern," *i.e.*, among Abyssinians, not in Abyssinia, where Pruner never travelled; but Baker never mentions it; and the elephantiasis mentioned by Bruce at Massuah (vol. iv. p. 232) is most certainly Barbadoes leg. By the kind courtesy of Dep.-Surg.-General Munro, I am informed that it was not mentioned among the army reports of the late Abyssinian war. It is not mentioned among the Gallas by New (Wanderings in Eastern Africa, 1873), though he mentions it among the Wasuahili on the east coast further south.

[3] Zambesi, etc., p. 119, and Last Journals, p. 131.

[4] Missionary Travels, pp. 503 and 629.

[5] Last Journals, vol. ii. p. 40.

[6] *Ibid.*, p. 117.

[7] *Ibid.*, p. 117.

[8] *Ibid.*, vol. i. p. 180.

Nyassa and the Manyuema country is about 1000 miles, clear of leprosy. A reference to works of travel in Northern Central Africa shows that it is much more common there.[1]

Passing to India, the earliest record of leprosy I have discovered has been through the kindness of Captain Waterhouse, Secretary to the Asiatic Society of Bengal, who most kindly referred questions put by me to Babu Rajendrálála Mitra, who as kindly answered them very fully. From these answers I gather that "kushta," or leprosy, was written about by the sage Atreya, son of Atri, who is quoted in the Vedas. Atreya is also quoted in the Rig Veda Sanhitá, dating from the fourteenth or fifteenth century B.C.[2] The date of the ancient Vedas has been placed by Colebrooke in the fourteenth century B.C.,[3] in which he is supported by Professor Cowell of Cambridge, who says that the Rig Veda is certainly not later than 1400 or so, B.C.[4] The word "kushta" was evidently meant to indicate leprosy by Atreya, as quoted by Charaka (600–400 B.C.), but by later authors was used in a generic sense, as by Susruta, about two centuries after Charaka.[5]

Kushta is not mentioned in the ancient Vedas,[6] but as they were religious poems, and, as Roth says, leprosy has never played as prominent a rôle among the Indian population as among some others—for instance, the Jews—its absence cannot be used as an argument against its existence when they were written.

From all the information I have been able to obtain from the best Sanscrit scholars of the present day (whose kindness in answering my queries I am very grateful for), leprosy, known then, as it is now, by the name "kushta," has existed in India from the earliest period of history, and was a common disease either before or cotemporaneously with the conquests of Sesostris of Egypt, who is said to have reached India in the thirteenth century B.C., fully half a century before the exodus of the Jews, so that these events could have nothing to do with its introduction into India. There was undoubtedly commerce between Egypt and Arabia 1000 years before this,[7] and probably communication thence to India; but of direct communication between Egypt and India there is no trace that I have discovered.

The Babu Rajendrálála says positively, "There is no indication whatever of leprosy having been imported from the west."

[1] See Caillé, Central Africa, pp. 225, 402; Park's Travels, p. 275; Du Chaillu, p. 390; and also Hirsch, p. 311.

[2] My questions and the Babu's answers are published in the Society's Transactions for 1875.

[3] Wise, Commentary on Hind's System of Medicine, p. 17. Calcutta, 1845.

[4] From private letter, for which I have to thank him.

[5] The Babu's letter. Roth of Tübingen says, "Kushta ist der name der Gattung."—(*Private Letter.*)

[6] Cowell, Roth, and the Babu.

[7] Brugsch, p. 80.

The weight of evidence, therefore, goes to show that leprosy is an indigenous disease in India.[1]

The next country in which it is important to discover whether leprosy is indigenous or imported, is China. In regard to its history there, I am much indebted to several Chinese scholars, who have most fully answered my inquiries, which were necessary, as I could not find any information as to its early history in any book I referred to. Dabry (La Médecine chez les Chinois) has a chapter on "Ta-ma-fong," as described by Chinese authors, but gives no references as to dates.[2]

Leprosy is not mentioned in Marco Polo's travels; but this may be because he resided chiefly in the north, while it prevails mostly in the south. Davis (The Chinese, vol. i. p. 357, and vol. ii. p. 14) mentions its prevalence, and the existence of a leper hospital at Canton. It is mentioned by Holman (Travels in China, pp. 152 and 272). In the College of Physicians' Report, p. 74, it is stated that the Leper Asylum at Macao is 200 years old.

Hirsch,[3] quoting Hobson and others, speaks of its enormous spread in China at the present day. I am informed that Dr Hobson, in a paper in the Chinese Repository, 1851, which I have not been able to get a reference to, mentions, as the first notice of leprosy, the case of a disciple of Confucius (about 500 B.C.); but the Rev. Dr Legge tells me that the name in the original was "lai," which is now used for itch, not leprosy. Mr Scott, of Edinburgh, mentions that leprosy is not spoken of in the earliest extant Chinese records, the Shoo-king, dating about 2000 B.C., nor in several other very ancient works, but chiefly in the Tcheou-li, referred to about 1500 B.C., which gives an account of the court of the third dynasty, and "a special account of the medical staff and its duties," and of ulcers of different sorts, but "it does not describe anything which seems to have any likeness to leprosy." Dr Dudgeon says, "Leprosy goes back to a period in China before our era;" and Dr Lockhart, "It has prevailed in China for some centuries B.C." Le Marquis d'Harvey St Denys, of Paris, writes, that, on consulting his Chinese treatises on medicine, "Ils sont muets sur l'histoire de le lèpre," except one, which says that it was formerly called "li-fong," and *was very rare* in China."[5]

(*To be continued.*)

[1] This conclusion I have come to from my correspondence; the authors I have consulted, viz., Wise and H. H. Wilson (Hist. of Lep. by Sanscrit Writers, in Calcutta Med. Trans., vol. i.), only tracing it back to Charaka and the Ayur Veda, about 900 B.C., so that from them I could not conclude that it had not been imported from Egypt.

[2] I wrote to Captain Dabry at Canton, but have as yet received no answer.

[3] China and the Chinese, London, 1837.

[4] Lib. cit., p. 314.

[5] Private letters, for which I thank the authors.

ARTICLE IX.—*On Passive Cerebral Pressure.* By ROBERT TURNER, M.D., Keith.

(*Read before the Medico-Chirurgical Society of Edinburgh, 3d May.*)

THAT similar morbid phenomena attend the opposite states of hyperæmia and anæmia of the brain, is a familiar fact to clinical observers from Hippocrates downwards; but the true explanation of this seeming paradox, I venture to affirm, has yet to be given.

The so-called "Edinburgh dogma," asserting the invariability of the quantity of blood within the cranium, has been thoroughly refuted by the experiments and reasoning of Dr (now Sir George) Burrows,[1] and the assumption founded on this demolished theory, —that the pathogenic agent in cerebral anæmic states is venous congestion, exerting injurious pressure,—must, of course, be discarded along with the theory itself. The solution, however, which the victor offers instead has always appeared to me (to say the least) equally unsatisfactory; involving, as it does, the proposition that vascular depletion can of itself perform the undoubted and precise semiological work of vascular over-fulness. "Insufficient pressure in the brain" there must certainly be, whenever the quantity of the circulating fluid there is materially diminished, its quality materially impaired, or its momentum materially weakened; but before assenting to the opinion that this insufficiency is *per se* the cause of the train of symptoms characteristic of cerebral anæmia, I should require to be convinced that no other agency fit to produce them is, or can be, in operation. No support, moreover, is claimed for this hypothesis either from observation or argument; indeed it would appear to be of but doubtful cogency to Sir George Burrows himself; for in speaking of syncope from hæmorrhage,[2] he remarks:—"In this case it is not so easy to show that the suspension of the cerebral functions is occasioned solely by want of vascular pressure on its substance." Assuredly the teaching of syncope thus originating will justify some misgiving as to the soundness of the hypothesis in question, even if this were otherwise unassailable. The practice of medicine at the present day affords but few opportunities of studying the phenomena of syncope from hæmorrhage, compared with those it furnished some thirty or forty years ago, when the *lancet* was a strong power amongst us; but there are doubtless still some seniors in our ranks able, from bygone experience, to testify to the fidelity of the picture I will now endeavour to draw of the *res gestæ* of a typical phlebotomy in the old time, administered *en regle.* The subject of the procedure, in fair general health it might be, was made to assume a sitting posture, and blood was drawn *pleno rivo* from the arm until pallor of countenance, failure of sight, and ringing in the

[1] "On Disorders of the Cerebral Circulation," etc. [2] *Op. cit.*, p. 61.

ears, announced the necessity for stemming the torrent, and substituting the recumbent for the upright position. To grasp the extremity and shut the bleeding orifice with his thumb was, on the surgeon's part, the work of a moment, but the subsequent undoing of the fillet encircling the arm above, and the observance of due care to secure a *facilis descensus* for the patient, entailed a little delay; pending which the series of induced symptoms was completed by the addition of stertorous breathing, convulsive movements of the limbs (making it difficult for the operator to keep the wound closed and prevent the further loss of blood), and lastly, unconsciousness. But the floor once reached, and the patient extended on it, his restoration from his syncope — prodromi, accompaniments and all—was, as a rule, instantaneous.

Now, had my hero sustained a fracture, with depression of the skull, instead of an orthodox venesection, the resulting phenomena could not, to me, have signified more distinctly the agency of undue pressure; and after-speculation to the following effect has impressed me with the belief that pressure is not only possible in the circumstances, but inevitable:—

In the state of health, the left ventricle of the heart propels, with normal power, blood of normal consistency through vessels of normal tonicity, which form what may be called, for shortness, the cerebral vascular tree, keeping these vessels distended throughout to the extent of their normal calibre. One effect of this propulsive force, as exercised within the cranium, will be to bear up the weight of superimposed from underlying portions of the cerebral mass; the entire tree, from its larger branches below to their minute ramifications, that thickly permeate the organ to its circumference, taking part in this *bearing-up function.* But let the action of the cardiac force-pump be, from any cause, arrested, and the bearing-up function ceases; pressure ensues in an increasing ratio from convexity to base and medulla oblongata, attaining its maximum at the last-named situations, where the cranial nerves have their superficial origin; and the succession of morbid phenomena above detailed, the amaurosis, the tinnitus aurium, the stertor, the clonic spasm, and the coma, will as certainly follow as if the proximate cause were active cerebral engorgement or cerebral hæmorrhage. If these symptoms, in the circumstances under consideration, are in general but transient, it is only because they depend on a condition which can in most cases be speedily removed. A prominent part, we may conclude, in the production and maintenance of the paroxysm, is borne by the pneumogastric nerves. Pressed on along with the other intracranial nerves, they will, in turn, so act upon the central organ of the circulation as to oppose a further obstacle to the restoration of its function;—a recognised consequence of pressure on these nerves, at or near their origin, being embarrassment or even complete stoppage of the heart's action.

The symptoms, then, common to cerebral hyperæmia and anæmia have, I submit, a common factor—pressure, although in the one state it is direct, active pressure, and in the other indirect, passive pressure; and the only condition essential to its existence in the latter is arrested vascular action, with consequent stasis of the blood, within the cranium.

Holding these views, I cannot concur with Sir George Burrows in condemning as groundless and extravagant[1] the assertion that "animals bled to death die of apoplexy;" for I believe it conveys a truth which derives both support and explanation from the passive-pressure theory above advanced.

The objective identity of repletion and vacuity in disease, pointed out by the Father of Medicine,[2] has attracted the notice of many of his professional descendants, who have yet, as I conceive, missed hitherto the *rationale* of that identity, as regards, at least, its manifestation in affections of the brain.

The affinity of syncope and apoplexy has been acknowledged and commented on by various medical writers. The late Professor J. Hughes Bennett, for example, observes concerning it:—"Syncope differs from apoplexy only in the extreme feebleness of the heart's action, the cause producing loss of consciousness, sensation and motion being the same in both. Indeed, it is sometimes difficult to distinguish these states from each other."[3] In both, Dr Bennett recognises the action of pressure, and so far my own conviction accords with his; but when he proceeds to argue that in the case of syncope this pressure is due to cerebral venous congestion, it is scarcely necessary for me to say that the concurrence of our views is at an end. I do not see, however, that Sir George Burrows is entitled to the position he assumes towards the lamented Professor, when, in criticising the passage just quoted, he expresses "regret that such erroneous doctrines as to the nature of so alarming a condition of the system as syncope should have been disseminated."[4] Dr Bennett's conclusion may be, and I feel constrained to pronounce it, erroneous, but it is intelligible, and the explanation on the "insufficient-pressure" hypothesis by which Sir George Burrows would supplant it, appears to my understanding devoid of that quality.

Examples of this quasi-apoplexy will have fallen under the notice of most practitioners—very constantly, indeed, wherever the subject of a fainting fit has been hindered by the ignorant ministrations of attendants, or other cause, from attaining at once the recumbent posture. The most perfect case I have seen of the kind occurred many years ago, but the details—partly, perhaps, from the ludicrous element having been curiously mixed up with the sensational in them—are still fresh in my memory. An enormously fat old woman, living with her daughter, a sewing-

[1] *Op. cit.*, p. 30.
[2] Sect. vi., Aphorism 39.
[3] Library of Medicine, vol. ii. p. 92.
[4] *Op. cit.*, p. 64.

school mistress, was in the habit of taking frequently, at her own instance, a warm bath, in pursuance of some whim, the nature of which I cannot now recall. The bath was of the homeliest, being a large cask or water-butt set on end and open above. It stood in a corner of the school-room, and was now and then resorted to by its designer and possessor, with her daughter and the pupils at work beside her. On one such occasion, teacher and taught were startled and attracted to the spot by a faint cry issuing from the region of the bath, when they found its occupant in a state of insensibility, and snoring loudly, her head fortunately kept above water by her having fallen forward and caught the edge of the cask with her chin. A troop of screaming girls summoned me to the rescue, but owing to the distance of my residence from the scene of the disaster, a quarter of an hour at least must have elapsed from the time of its discovery till that of my arrival. The measured stertorous breathing of my unwitting client greeted my ear at the door of the apartment; and on entering I found her in the predicament described, surrounded by a body of excited needlewomen, doing their utmost, in relays, to preserve her from complete immersion. But how to achieve her deliverance? Her bulky frame so nearly filled the cask that baling out the water was at once seen to be impracticable. My first impulse was to overturn the cask and pull the woman out; but to effect this the combined strength of the force at my disposal proved to be inadequate; and the expedient which next suggested itself was that of knocking in the bung, and thus getting rid of the water, in the hope that we should then be able to upset the vessel and extract its *solid* contents. Again were the fates unpropitious! for the bung had been secured by a plate of tin or sheet-iron nailed over it, and could not be displaced before this was removed—for which purpose a chisel and hammer had to be sent for to a carpenter's in the neighbourhood, necessitating some further delay. But these appliances procured, the plan was at once carried out, and before the object of our anxiety and exertions had been many seconds extended on the floor, the fit, with its alarming accompaniments, was over. Another quarter of an hour, however, must have been consumed in fruitless effort and unavoidable pause before this consummation was reached. In the way of treatment, nothing could be done from first to last in the untoward circumstances beyond admitting a current of cold air into the apartment, and dashing cold water on the face from time to time; and I am sure I speak within bounds in saying, that during a full half-hour the woman's state continued such as I have described it—undistinguishable from an attack of apoplexy, had not the exciting cause been evident.

Apoplexy, it has long been known, will sometimes accomplish its fatal mission without leaving any footprint to be traced by post-mortem examination—a mystery which neither the advance

of medical knowledge, nor of improvement in the method and means of post-mortem inquiry, has served in any measure to unravel; for one of our latest and best authorities (Dr Wilks) can only advert to this pathological puzzle in such terms as these:—"Occasionally you may be called to a case where the patient is insensible, or suffering from apoplexy, and on examining the brain you find nothing. During the last two years I have seen two cases where the post-mortem revealed nothing."[1] Abercrombie, in reviewing cases of this kind, recorded by several of the older writers, as well as by Stark, Powell, Bright, and himself, remarks:—"The apoplectic attack, as it occurs in such examples as these, must be supposed to depend on a cause which acts simply upon the circulating system of the brain. . . . . What the precise nature of the derangement may be, it is a point of the utmost difficulty to determine, and perhaps we have not data upon which it can be determined by legitimate induction."[2] The cause and the nature of the derangement do not seem to me far to seek; for in such cases, where neither cerebral extravasation, effusion, congestion, nor disorganization can be found to account for the course and termination of the attack, I believe we are absolutely shut up to the conclusion that, at some stage, the dynamic bearing-up force of the intracranial circulation had been suspended or greatly impaired by failure of the heart's action, and that passive cerebral pressure and its consequences had ensued, determining the fatal event.

Hitherto I have been considering the action of this passive pressure as suddenly applied only, and when the system is in a state of comparative health and vigour; but I believe it has a not less important rôle in asthenic affections, generally, implicating the brain, with their cardiac enfeeblement, flaccid bloodvessels, and scanty, attenuated blood; although in these the pressure is usually of slow growth, and the brain is "educated" to tolerance, instead of being taken by surprise, until tolerance is no longer possible, the severity of the symptoms increasing *pari passu* with the increasing pressure. The cerebro-spinal fluid, I would here remark, whose complemental relation to the other contents of the cranium is not to be disputed, cannot in any beneficial manner influence passive cerebral pressure. On the contrary, the increased quantity of this fluid in the membranes, ventricles, and perivascular canals of the brain, found in anæmic states, must add to the amount of the pressure, and consequently to the gravity of the morbid condition manifesting it.

As an example in point, the hydrocephaloid disease may be selected, the progress of which from small beginnings is marked

[1] Lectures on Pathology, as quoted in Reynolds's System of Medicine, 2d ed., vol. ii. p. 562.

[2] Pathological and Practical Researches on Diseases of the Brain, etc., 3d ed., p. 202.

by a succession of more and more formidable symptoms—semi-coma, gradually approaching to perfect; impaired vision, hearing, and deglutition; convulsions, involuntary evacuations, and, farther on, profound stupor, with sluggish or motionless pupils, and stertorous breathing;—all telling unequivocally of pressure, which can only be passive. And in such cases, I think, the juvantia give a sound little less certain of similar import. Nay, more, the conspicuous depression at the fontanelles, so often seen in infantile cases of this malady, but disappearing when the issue of these cases is favourable, affords, in my estimation, evidence to the same effect not far short of actual demonstration.

The head symptoms which may attend or supervene on all pre-eminently debilitating diseases or morbid conditions admit of a like explanation. The course of these symptoms is, if uninterrupted, the same; but it is well known that by incautious interference with this course—by an abrupt change from the recumbent or reclining to the erect posture—a state of extreme bodily exhaustion, giving yet promise of ultimate though tedious recovery, or in which, at least, a feeble existence of days, weeks, or months was possible, may have an instantaneously fatal termination. Instance the sudden deaths occurring in this way during convalescence from fever, cholera, and other wasting maladies, in the advanced stages of malignant or other organic diseases, in profuse hæmorrhages, etc. I do not, of course, deny that, in such circumstances, the sudden throwing back of the blood on the heart—"the oppressed oppressing"—has its share in the production of the fatal result; but I hold that that result is more especially, if it be not chiefly, due to the rapid increment of pressure at the base from the superincumbent mass of the brain. From my own experience of these unfortunate cases, I have the impression that they occur oftenest shortly after the ingestion of food, when the feeling of invigoration hence arising may induce the invalid to sit up or to get out of bed, and thus allure him to his fate; and when the physiological afflux of digestion (at the expense, of course, of the brain in common with other parts of the body) may play the part of "the last drop which maketh the cup to run over."

The action of passive cerebral pressure may, I think, be perceived in many states and stages of disease besides those already considered. I trace it in the various maladies, caused or characterized by faulty nerve-function, unhealthy blood, and depraved secretions; as well as in slighter departures from health, such as ordinary dyspepsia, or even prolonged fasting, where the ringing in the ears, the partial amaurosis and giddiness are, I conceive, in part due to it. Its action seems to me to be indicated also by the embarrassed breathing in the sleep which may follow great bodily exhaustion, where, especially in extreme old age, the respiratory acts are often so irregularly and so noisily performed, with occasional pauses of such long duration between, as to excite alarm in those within

hearing; and I recognise the same agency, in combination with other causes, in the dulled special senses, the vertigo, and the infirm gait of advanced life.

Nor, in my estimation, does this passive pressure theory interpret less clearly the coming and going of symptoms with the patient's changes of posture in such cases as the following:—"A gentleman, about thirty years of age, came to Edinburgh from a distance for advice in regard to an obscure affection, referred chiefly to the stomach, which had reduced him to *a state of extreme weakness and emaciation.* As the debility had advanced, he had become considerably deaf, and when I saw him he was affected in the following manner: He was very deaf *while sitting erect or standing,* but when he lay *horizontally, with his head very low,* he heard perfectly. If, when standing, he *stooped forward,* so as to produce flushing of the face, his hearing was perfect, and upon raising himself again into *the erect posture* he continued to hear distinctly as long as the flushing continued; as this went off the deafness returned."[1] I need scarcely observe that I regard the "flushing of the face" as merely an accompaniment, and in no degree the *cause,* of the restoration of hearing in this case.

The narratives, by Sir John Rose Cormack,[2] Dr Marion Sims,[3] and Mr Lawson Tait,[4] illustrating the value of inversion of the body, or Nelaton's method, in chloroform narcosis, have for me a peculiar interest; for I perceive in them strong confirmation of the views I have advanced. A less decided alteration of the patient's posture would serve, I think, to remove as far as practicable every obstacle to possible success in the management of such cases, except what I consider the main one—the paralyzing influence on the heart of compressed pneumogastric nerves. In all the instances referred to, it was abundantly evident that nothing short of complete inversion of the body would have sufficed for the accomplishment of resuscitation.

The method of Nelaton, it seems to me, admits of a more extended application. Dr Marion Sims, indeed, suggests its adoption "in cases of threatened death from post-partum hæmorrhage;[5] and, looking at the question from my own point of view in addition to his, I believe the plan might also be employed with advantage, when other measures are likely to fail, in syncope from whatever cause arising, as well as in cases of poisoning by hydrocyanic acid, aconite, digitalis, etc.[6]

[1] Abercrombie, *op. cit.*, p. 309.
[2] British Medical Journal for 22d August 1874, p. 237. [3] Ibid., p. 239.
[4] Practitioner for February 1876, p. 102. [5] *Loc. citat.*
[6] The symptoms and suddenly fatal termination, especially when viewed in connection with the cerebral anæmia revealed on post-mortem examination, in a case of poisoning by digitalis, given from the Centralblatt, in the Edinburgh Medical Journal for August (p. 180) may, I think, be satisfactorily explained on the hypothesis advanced above. I quote only part of the narrative, itali-

In concluding this communication, it may be proper for me to say that if, when stating and maintaining my own opinions, I have appeared wanting in due respect and deference for those of others, the seeming discourtesy of tone is altogether attributable to the conflicting nature of the opinions, and my desire to express myself concisely and perspicuously.

ARTICLE X.—*English Practitioners and Practice at the End of the Seventeenth and Commencement of the Eighteenth Centuries, portrayed by themselves.* By JOHN MACPHERSON, M.D., Inspector-General of Hospitals (retired).

(*Continued from page* 160.)

WE shall next inquire what general notions of practice physicians had, and gather them first from some non-professional writers. And, first, Sir W. Temple writes thus:—"The usual practice of physic among us runs still the same course, and turns in a manner wholly upon evacuation, either by bleeding, vomits, or some sort of purgatives; though it be not often agreed among physicians in what cases or in what degrees any of these are necessary. So much is certain, that it depends a great deal upon the temper of the patient, the nature of the disease in its first causes, upon the skill and care of the physician, to decide whether any of these violences upon nature are necessary or no, or whether they are likely to do good or harm.

"The rest of our common practice consists in various compounds of innocent ingredients, which feed the hopes of the patient and the apothecary's gains, but leave nature to her course, who is the sovereign physician in most diseases; where they know no specific remedies, to prescribe diet; and above all, to prevent disorders from the stomach, so that it should not be weakened when it is most necessary to strengthen and support it. It is true, physicians must be in danger of losing their credit with the vulgar if they should often tell a patient he had no need of physic, and prescribe only rules of diet for common use. Most people would think that they had lost their fee. But the first excellence of a physician's

cising such portions as have a bearing on the point:—"To procure exemption from military service, two young men began and continued to eat digitalis leaves. One of them, who, in rather more than four weeks, had consumed 13·7 grammes, *died suddenly on standing up.* Some time before he had had a severe *fainting fit* on assuming *the erect posture.* The symptoms . . . were those of severe catarrh of the stomach, which was, however, characterized by . . . . increasingly and strikingly slow pulse. . . . . Post-mortem examination showed that *the brain and large vessels were empty of blood,*" etc. Here, the "fainting fit" marked a degree of cardiac paralysis compatible with recovery in the horizontal position; but *passive pressure*, on the sudden assumption of the erect posture when the cumulative action of the poison had proceeded farther, proved fatal. In such circumstances, might not prompt recourse to Nelaton's method, aiding other appropriate measures, lead to a fortunate issue?

skill and care is discovered by resolving whether it be best in the case to administer any medicine or none, to trust to nature or to art; and the next, to give such prescriptions as, if they do no good, may be sure to do no harm."

Another non-professional writer observes, that "the uncertainty of medicine has so distracted our physicians, that they vary even in the most common methods. At one time they keep their patients so close and warm as almost to stifle them with care—and all on a sudden the cold regimen is in vogue. In one age alkalies are in fashion, and in the next acids begin to recover their credit. Antimony at one time is next to poison, and again the most innocent thing in the world if duly prepared. Bleeding is practised in one nation and condemned by their neighbours. Some people are prodigal of their blood, and others so sparing as if so much life and blood went together—and all of them with equal assurance that they are right."

If we turn next to the views expressed by the profession, we find that in those days they talked much of the exactness of chemistry, and more of what necessitated the application of mathematics to the explanation of the phenomena of life and disease—of tubes, their diameters, amount of friction, of vacuums, and other matters of hydraulics; but these views influenced English practice much less than might have been expected. It was often said that the immortal discovery of Harvey had borne much less fruit than had been expected, and one lecturer even went the length of saying, "For Harvey, we explode both him and his circulation." It was also attempted to apply the doctrines of Sanctorius regarding insensible transpiration, and the movements of the nervous fluids and animal spirits had to be taken into account.

Strother said that in general diseases must be cured by remedying their causes in such order as they arose. "The internal fixed causes are remedied by evacuation, under which head I reckon translation, and by alteration. Evacuations are emetics, cathartics, diaphoretics, diuretics. Translations are all the revulsions we make use of. Alteratives are of two sorts, both contrary to the cause. But it sometimes happens that diseases are irremediable, and yet we are, for the comfort of the rich, obliged to watch for a while, by remedying such symptoms as would destroy the patient." On the whole, the leading idea of English practice seems to have been that there was usually a plethora requiring to be relieved.

The general principles that guided practice appear to have been pretty much the same at the commencement and at the end of the period of which we treat. Clermont considered that all diseases arose from repletion or inanition—that those of the English certainly arose from repletion. Repletion was to be treated by evacuation, which might be made by purgatives and by venesection. In the case of the English, he preferred purgatives, for he knew no nation in Europe that, as a rule, bore bleeding so ill as the Eng-

lish, which he ascribed partly to their gross feeding, and partly to the heaviness of the air. Cheyne wrote to much the same purpose, that most of all the chronic diseases, the infirmities of old age, and the short lives of the English, are owing to repletion. "This is evident from hence, because evacuation of one kind or other is nine parts of ten in their remedy; for not only cupping, bleeding, blistering, issues, purging, vomiting, and sweating are manifest evacuations or drains to draw out what has been taken in unnecessarily, but even abstinence, exercise, alteratives, cordials, bitters, and alexipharmics, are but some means to disperse the gross humours."

Some notion is afforded of the prevailing modes of practice by G. Harvey's satirical division of doctors. He divided them into—

1. Farriers, those who found a panacea in iron, who ordered it for all complaints, alike for the green sickness and for coughs. Doubtless they are numerous at the present day.

2. Those who prescribe a diet of milk as a cure in a great variety of complaints, asses' milk being especially prescribed. The use of milk in the treatment of disease has been reviving of late years.

3. The bark doctors, who used the Jesuit's bark, and regarded it as the sole remedy. There were the same disputes in those days as to the quantity in which bark was to be given, and after what amount of preparation, as there often have been in later times.

4. There were the water doctors, who prescribed courses of mineral waters for all complaints, and who would insist on Tunbridge or Dulwich waters being drunk during hard frost.

5. The water doctors, or those who professed to decide from the appearance of the urine, were not extinct. Crowds of men and women went daily to them with vials and bottles, as for a definite sentence in their husbands', wives', and children's cases. Radcliffe ridiculed this by making the wife of a shoemaker carry back to him a specimen of the doctor's water, with the message, that if the shoemaker could fit him with a pair of boots by inspecting his urine, he would no longer decline to prescribe on merely seeing her husband's. "Reasons," says Fuller, "drawn from the water alone are as brittle as the vessel." Has not there been a slight tendency to revive this inspection of water? although, of course, modern examination of water is a very different thing from the mere sight of it formerly considered sufficient.

6. Bleeding doctors—those who thought they could not take too much blood. Most of them used phlebotomy at random. In acute fevers Dr White found five to six lbs. loss of blood necessary. We do not err in this way.

7. Purging doctors. This treatment is one that has always been the English treatment *par excellence*, although it has been relaxed of late, and patients do not now "squirt their souls out" under it.

8. Then there were the groping doctors, who actually pretended to find it not possible to "discover a disease in a man without groping at his side, which knack is taught them by some physicians in Paris"—so that auscultation and percussion are not the only means of diagnosis which we owe to the French.

9. Men-midwives, who even then were apt to make too much of their cases, and persuade the patient that "at her last lying-in, her midwife did not perform her office skilfully, or did not lay her well, whereby she received a great deal of prejudice, as displacing of the matrix, etc."

10. There were the expectation doctors, to whose principles Temple has alluded. Expectation might be described as "the applying of remedies that do little hurt and less good; for while the patient from day to day receives little benefit, yet nature and time, partially or entirely, cure the disease, when the doctor takes the credit of it." This is the satirical view of the case. Expectation treatment, or watching nature, has made great progress within the last half-quarter of a century, and has attained its great development in the spread of homœopathy.

11. There is one other class of doctors, the religious—some partly from necessity, some from desire. Temple remembered "an ingenious physician, who told him, in the fanatic times, he found most of his patients so disturbed with troubles of conscience, that he was forced to play the divine with them before he played the physician, whose greatest skill perhaps often lies in the infusing of hopes, and in inducing some composure and tranquillity of mind, before they enter upon the other operations of their art. And this ought to be the first endeavour of the patient too, without which all other medicines may lose their virtue."

Fuller says that "the good physician coming to the patient persuades him to put his trust in God, the fountain of health." There may be occasion to do this, but the general voice of the profession has always been that he should confine himself as much as possible to the cure of the body. A question connected with this is, how long a physician should withhold from the patient or his friends his conviction that the sick man will not recover. It is doubtless right enough that physicians should make the best of their patients' condition, but probably as a rule they are too tardy in disclosing the probably fatal result of a case.

12. Another set of doctors aped eccentricity in their manners or in their prescriptions. For instance, "they might prescribe beer that had been made in winter, or four or five ounces of peach kernels in spring, or ordain a restorative electuary out of (things not to be had) parrots' tongues and hawks' livers, as a most egregious physician of our town did." As to eccentricities of manner, the sayings of Radcliffe, which did not spare even royalty, offer an example. They are too well known for it to be necessary to repeat any of them here. Marked eccentricity of manner is

undoubtedly less frequently met with now than formerly. There is less variety of dress and of deportment.

Having got these general notions as to principles and practice, we may next inquire what some of the remedies used were. Here, again, Sir W. Temple gives a good ordinary view of the subject. "As diseases have changed vogue, so have remedies in my time and observation. I remember at one time the taking of tobacco, at another the drinking of warm beer, passed for universal remedies. The swallowing of pebble-stones, in imitation of falconers curing hawks. One doctor pretended to help all heats and fevers by drinking as much cold water as the patient could bear. At another time swallowing a spoonful of powder of sea-biscuit after meals was infallible for all indigestions, and so preventing diseases. Then coffee and tea began their successive reigns. The infusion or the powder of steel have had their turns, and certain drops of several names and compositions; but none that I find have established their authority either long or generally by any constant and sensible successes of their reign, but have rather passed like a mode which every one is apt to follow, and finds the most convenient and graceful, while it lasts."

There was a great complaint in those days, when people had nearly lost faith in astrology and in charms, that an immense number of useless articles remained in the Pharmacopœia. Harvey said that less than a third of the drugs of the London Pharmacopœia would suffice. "Many eminent physicians," says Blackmore, "have recorded abundance of medicines in their writings, and recommended them to the world as endowed with singular virtue, which, however, will disappoint the practitioner who relies upon them, as particularly those powerful medicines following:—The tooth of a boar, the jawbone of a pike, the bone of a stag's heart, the stone in a carp, the powder of goats' blood, the dung of labouring beasts and pidgeons, the white excrement of a cock, the penis of the stag and bull, besides a great variety of description of plants, as well as numerous preparations made by fire, as diaphoretic antimony and chrystal mineral, as well as a great number of chymical liquors, of which spirit of hartshorn is the best, and will serve instead of all the rest." It would be easy to add, from books of the day, specimens of the strange compounds used in those days; but they are tolerably well known, and the value of them may be guessed by the fact of millipedes or hog lice being considered among the most efficient remedies. But, besides such harmless remedies, they had their evacuants—violent blistering, and sweating and purging, and the help of a multitude of vesications, cupping, with scarification, cauteries, setons, fontanelles, or issues. Some of the more popular secret medicines, but ordered by physicians, were Sir Walter Raleigh's cordial, plague water, Russell's powder, Dr Stephen's powder, Dr Goddard's drops, Goa stone, mummy, and endless panaceas. Butler's stone was nearly forgotten.

White, laughing at the complexity of the preparations, affirms that "if we jumble together, blindfold, such a mess as the precious hard stones and pebble stones, pearls and wilks, chinaware and tobacco-stoppers, terra Lemnia and English earth, bricks and slates, Welsh coal and Scots coal, human excrement, and goose-dung (especially because the last four have sulphur, and there is some manifest salt in the last), we shall have a good alexipharmatic medicine."

For a long time writers—Boyle one of the first of them—had seen the necessity for making our prescriptions more simple; and, while working out this idea, he had at the same time great confidence in specifics, and thought that remedies might be devised for each special disease. Blackmore wished to remove from the practice of medicine a great number of medicines, which he thought not only unnecessary, but burdensome. "Young physicians ought to be informed of the unusefulness and insignificancy of the generality of medicines which they will find in the writings of the boastful chemist, superficial botanist, and systematical physician. It was desirable that the real force of medicines should be ascertained, and that more capable and experienced physicians should draw up and publish a catalogue of medicines in vogue, and kindly and honestly let students know that they have for many years, by repeated trials, observed their operation, and seldom or never discovered any virtue in them. Far the greatest number of the medicines in use would be found to be impertinent and unavailing; and by such a faithful scrutiny, how many celebrated distilled waters, apozems, pills, electuaries, etc., will be thrown out, which have no right to be recognised among effectual remedies. How great sufferers must even our most eminent authors be!"

Dr Blackmore was content to limit himself to his four great remedies; for, excepting opium, mercury, the Peruvian bark, and steel, either solid or dissolved in mineral waters, and next to these the Bath waters in several cases, they were all uncertain and precarious.

With respect to one of those more important remedies, that noble remedy, the Jesuit's bark, it is satisfactory to find, was appreciated by all writers, however they might differ as to time and mode of its use. "The discovery of the bark of Peru has furnished us with an indication never till then dreamed of, which I may call a period, though I mean the remission of that period only. So that, not only the intermissions of agues, and the remissions of putrids, but also periodical disorders, such as convulsions, dry asthmas, and epilepsies, receive advantage by the administration of this drug. Where there are any remissions or intermissions, the bark of Peru is the most remarkable remedy; but in any eruptive fever, it is useless or dangerous before a total eruption."

We may remark, in passing, of one other valuable medicine, which Dr Blackmore might well have added to his list of remedies, the dysenteric root, that by this time physicians had lost faith in

it very much, as a specific in dysentery; and, indeed, Dr Cockburn, in 1736, tells us that the French, who had been religious admirers of ipecacuanha as a specific for half a century, had now been for some years cured of their credulity. Something must be set down to Cockburn having a specific of his own. But White speaks in the same disappointed way of ipecacuanha.

At the period of which we speak, the inhalations of gum benzoin, sulphur, and various other substances recommended by Bennett in his Theatrum Tabidorum, had nearly died away, to be revived at successive periods, as at the present day.

Sulphur, too, was not quite in so high favour as it had been a few years before, when it was regarded as the true balsam for the lungs. The recent revival of its use in Scotland seems to have been shortlived.

Gideon Harvey laid down, perfectly correctly, that no waters, mineral or others, could really act as solvents of stone.

Grave doubts were entertained then as now regarding the absolute value of sarsaparilla.

Fuller, in his Medicina Gymnastica, had propounded much of what is now revived under the head of kinetic practice, although it was rather general exercise that he recommended than special gymnastic movements.

A word or two may be allowed about bleeding. We have seen how it was not used in Italy, while it was universally practised in London about 1672. Dr White, in 1712, observed that "it is evident that national dangerous errors may prevail among physicians, from what befell Germany and Holland by Paracelsus and Helmont, whose followers would not let blood in the distempers in which it was found to be of absolute use by the ancients, such as fevers, tremors, pleurisies, etc., and ever will be to the end of the world, unless mankind should get a new and different organization of body; and so this leaven crept over into England also, and prevailed so far that it was thought almost equal to murder for a physician to order bloodletting in the smallpox and malignant fevers." Harvey had called bleeding death in measles or smallpox. At the present day, we again practise little bloodletting, and accuse the Italians of bleeding their patients to death. There will always be a question how far these changes are founded on fashion or on reason—how far there is a different "organization," that is, condition of the body, or a difference in the character of disease, to warrant the change. However right or wrong we may, at the present day, be in proscribing bleeding in particular affections, there can be no question that the profession has greatly exaggerated the evil effects of bloodletting, when we consider that, even now, losing blood once a year is a common and innocuous habit in many countries of Europe, and that formerly the use of baths was generally accompanied with the free use of cupping.

In the period of which we treat, there was a great revival of

bathing. The English crowded to Bath, to Aix, and to Bourbon-L'Archambault. Vapour baths came anew into fashion. The Hummums and other bagnios sprang up, chiefly in the neighbourhood of Covent Garden and Long Acre. The cold-water cure was introduced, and many cases are related of fevers and small-pox cured by immersion.

Internally, cold water and ice were for a time believed to produce most wonderful effects in fever, both in England and in Naples. All the purgative and chalybeate waters in and about London were in constant employment. Among the chief, Dulwich and Northhall, and the chalybeates of Islington. Almost all consumptive cases were not only placed on a milk or whey cure—and asses' milk was the favourite—but the great majority of them were ordered chalybeates, and especially a mixture of milk and Islington Spa water.

We shall enlarge a little on a mode of treatment which is often supposed to be of modern origin, but which was in reality much employed during the period of which we treat—change of air and climatic cures.

Change of air was then, as now, used mainly in pulmonary affections, and the complex effect of its action was then understood. "Neither," says Harvey, "is it the change of air only that proves so sovereign to consumptives, but the change of bread, beer, and flesh. Fresh company, and other circumstances, do much conduce thereto." Carr commended even the effects of the sea voyage to Calais when people went abroad, and the merriness of the French, and the lightness of their air. Willis recommended villages in the neighbourhood of London, and the air of Banstead Downs was famous. For most consumptives, Harvey recommended the middle of England—Worcester, Gloucester, and Oxford shires. Abroad, Clermont in Auvergne, and Montpellier were in favour. Harvey thought that some places in Languedoc excelled even the Stabiæ of Galen. Crowds, says Willis, went to the south of France, and Montpellier was the great place of resort. Charles II., at his own expense, sent Wycherley, the dramatist, to Montpellier for a winter, from which he returned cured of a bad cough. Cheyne advised old men to resort to warm climates if they would live as long as the crows. Blackmore seems to have studied the subject carefully, and arrived at these results. "It seems reasonable that persons that inhabit the vale, should remove to the purer air of the downs and hills; and, on the other hand, that the valetudinary people of the uplands should come down to the flats and lower districts, and by this exchange of patients a beneficial commerce of health may be carried on with success. Generally speaking, consumptive patients, that are emaciated and of a hot temperament, should not change their air for what is more rarified, especially if they are given to spit blood; and, therefore, such patients should not go into the subtile air of the south of France, but, on the contrary, should fly for pro-

tection to the United Provinces, where they will find the air of the Hague and Utrecht more beneficial to them than that of Clermont and Montpellier. On the other hand, persons heavy and encumbered with a load of humours, and with a cough by which they discharge great quantities of phlegm, may reasonably expect to find their arrest by removing to the hills in their own country, or to the purer, thinner air of France." Here we have the germs of modern views concerning sluggish and erethic cases, between stimulant and sedative climates. The subject is practically not much advanced since those days.

It is interesting to hear what Strother says of the effects of diminished and increased atmospheric pressure—a question now much discussed.

"If we live in a lower region, the column of air that presses on us is much heavier than when we live in mountainous places: so that they who spit blood live uneasy where the air presses the vessels of the lungs too much, but are helped by removal into an air less compressed (avoiding any extreme on this side too); and they who are asthmatick, and want to have the lungs more expanded, ought to live in a dry region, and somewhat inclinable to cold, where the air will be more compressed, and their chests will be more opened."

Then, as now, there was some doubt as to the expediency of always sending away consumptive patients. "All," says Willis, "do not receive help from such a change of place; for many, passing to France or to country villages, do, in these places, rather find their grave than health; and therefore London is not presently to be forsaken by all phthisical persons: for I have known many subject to a cough or consumption to have enjoyed their health much better in this smoky air than in the country. So that, for cure of the same disease, while some avoid this city as hell, others fly to it as an asylum." Here is Harvey's picture of London as a hell. That his language is exaggerated there is no question, though one does not see why he should have indulged in it. "An air rendered thick by vapour and damps, nitrous evaporations out of the earth, filled with putrid streams, of sinks, gutters, ditches, muddy and dirty streets, and sulphur smokes of chimneys, stagnating and pent-up between narrow lanes and corners, seldom purified by the rays of a clear shining sun, nor frequently ventilated with easterly breezes. Such is the climate of London, where the air is experienced close, dull, damp, saline, and muddy, overspread with dense, dark saline clouds, attracted out of the sea for two-third parts, if not three-fourths, of the year." Things are not quite so bad nowadays. Indeed, with all our increase of coal fires, it seems doubtful whether our modern fogs are worse.

One word more about smoky air, because the very considerable, though by no means complete, immunity from phthisis of the inhabitants of the Western Highlands and Islands of Scotland has

been ascribed to their living in their huts in an atmosphere of peat smoke. Willis wrote that "it is manifest, by frequent experience, that a thicker air, provided it be sulphurous, proves very benign to some phthisical persons—I do not say to all. It is a common observation, that a consumption seldom infests those regions in England or in Holland where fires are nourished by turf, and do breathe a very sulphurous odour; yea, rather, those places are chiefly wholesome and sanative to persons obnoxious to a phthisis or labouring under it."

Although this was anterior to the date when we began to send our phthisical patients to Lisbon, the following account of the climate of that place, from a physician who practised there some years, is worth perusing:—"The air is excessively cold by reason of prodigious rains, which fall for three months at least (and two or three more), but more moderately as the spring advances. Thus, in the winter, the walls of the houses, and everything within them, are overflowed with such humidity, that our books on a table lying loose shall be swelled so that we cannot shut them, which is the more intolerable in a country that has little fire." This account of Lisbon is unnecessarily unfavourable.

A few words of Harvey about Italian climates are worth quoting, as something of the same kind exists now: "The air of Rome is likewise very pernicious, especially all the summer, at which time, I was informed, that no person will hazard to travel towards Naples for fear of incurring that dangerous phrensy or fever, which the change of air brings unavoidably on them, especially among those who return from Naples to Rome, among whom scarce one in a hundred escapes." Every one who has been in Rome will remember how the Roman doctors lay the blame of their fevers on Naples, and the Florentine ones of theirs on Rome.

While on the subject of climate, we may remark that Gideon Harvey, who had recently removed there, considered the air of Hatton Garden to be the most serene in London. Some of the worst air was about Romney Marsh and the hundreds in Essex, and the fens in Lincolnshire. Salisbury, Hull, and Lynn were also unhealthy. Cambridge, strange to say, is called good for memory, because near the fens. Speed described Suffolk as "having a sweet air, esteemed by the local physicians the best air in England, often prescribing the receipt thereof to consumptional patients."

In these sketches, we have confined ourselves to what was done or recommended by regular practitioners. If we had entered on the performances of avowed mountebanks and quacks, we might have opened up a very amusing and almost endless field of investigation. The syphilis doctors, although some were regular men, would have demanded our reprobation. There are minute accounts of fasting girls, resembling in almost every particular the case of the unfortunate Welsh girl, who, a few years ago, was allowed to starve herself to death.

We have, perhaps a year or two before our period, the wonderful strokings of Mr Gretorix, which, for a time, competed successfully with the royal touch, and in which we find much of the procedure of modern mesmeric practice foreshadowed. The bone-setters, too, whether male or female, were as numerous then as now, and, although occasionally producing wonderful results, usually practised the old trick of persuading the patient or his friends that some bone was out of place, which they returned with a snap.

Before concluding, we must remark that it is very interesting to observe the first indications of various modern doctrines and practices.

"What noise," says the author of Reflections on Learning, "has been made about the transfusion of blood for some years; and the English and French have contended for the discovery, which, notwithstanding, so far as can be seen, is like to be of no use or credit to either nation."

We have seen how England has passed through former periods of phlebotomyphobia.

At this time the idea of furnishing such tracings of the pulse as are now made with the sphygmograph, had arisen; for the Chinese had studied the indications of the pulse minutely, and their drawings were published in Europe, giving graphic representations of the different characters of pulses.

Then, again, Strother had distinctly indicated that the thermometer was the only certain test of the degree of increase of temperature in fever; and, by the way, mentioned cases of fever treated successfully by immersion in cold water.

Boyle was aware that water will soak through the pores of a fine bladder, and dissolve salt of tartar, or even white sugar, contained in it; and applied the doctrine of endosmosis to the theory of the absorption of medicines.

If we were to wander from medicine in its stricter shape, we might show how the old belief in equivocal generation had just been abandoned, and how the doctrine of the survival of the fittest was no novelty.

We shall leave it to our readers to draw their own conclusions from the matter now brought piecemeal together; but, in closing this slight sketch, we have one consolation in finding, that controversy is less bitter, in its language at least, than it used to be. We scarcely exchange such amenities of phrase as then were common—asses, grinning fools, butchers who made their patients ghost it, physic zanies, Jack-puddings of the town, physic town-top, hocusser, are only a few of the milder terms of reproach that were freely bandied about; and among such phrases, that of antipodes of learning and good manners, has absolutely a certain amount of courtly suavity about it.

Part Second.

REVIEWS.

WORKS ON URINARY ORGANS.

1. *Clinical Lectures on Diseases of the Urinary Organs:* Delivered at University College Hospital by Sir HENRY THOMPSON. Fourth Edition. London: J. and A. Churchill: 1876.

A COURSE of Lectures delivered by one, confessedly one of the highest living authorities on the subject on which he lectures, which course has been constantly improved, added to, and re-considered every year for nearly ten years—which has grown from twelve chapters in the first to twenty-four in the fourth edition—contains nearly all the requisites to ensure success as a book. Lectures are pretty certain to have directness of aim, brevity, and interest, which compilations, however erudite and complete, are almost equally certain to lack. Lectures have individuality, and a personal interest. They may be scrappy, and, unless care is taken in the preparation for the press, are very apt to include repetitions. Sir Henry Thompson's work, from his careful revision and his thorough knowledge of his subject, is a nearly perfect monograph, and as such should be in the hands of all who teach or practise the surgery of the interesting and important region of which he treats.

2. *Diseases of the Bladder, Prostate Gland, and Urethra: Including a practical View of Urinary Diseases, Deposits, and Calculi.* Illustrated by Wood-Engravings. Being the fourth edition of the "Irritable Bladder," revised and much enlarged. By FREDERICK JAMES GANT, F.R.C.S., Surgeon to the Royal Free Hospital. London: J. and A. Churchill: 1876.

THOUGH this is the fourth edition of the "Irritable Bladder," it is now so much enlarged and added to as to be really a new work, in which the student will obtain, in fairly limited space and with tolerably good arrangement, a good practical account of the whole subject of diseases of bladder, prostate, and urethra. There is nothing new in either pathology or treatment; but the more usual and classical operations are described in a sensible and practical manner. We quote one sentence on Lithotomy:—"For years past I have protested against fettering the hands of the operator with many of the impracticable considerations laid down in Anatomico-Surgical works. In lithotomy, Anatomy plans the landmarks and limits of the incisions, perineal and prostatic; but the pathological conditions of the prostate and of the bladder are of more surgical importance in the seizure and extraction of the stone."—P. 133.

The motto of an anonymous author prefixed to the work is an excellent one; would that it was invariably found true of medical

or surgical works! "The growth of knowledge is unlike that of other things: for the more it increases its bulk diminishes."

3. *Lithotomy and Extraction of Stone from the Bladder, Urethra, and Prostate of the Male, and from the Bladder of the Female.* By W. Poulett Harris, M.D., Surgeon-Major, H.M. Bengal Medical Service. London: J. and A. Churchill: 1876.

This large and handsome volume describes lithotomy only, no mention being made of lithotrity; and is a compilation of the most innocent and *naïve* character. Without the slightest pretensions to original observation or research, the author has bundled together in a tolerably well-arranged manner the data on the subject of lithotomy from a few of the most familiar works on surgery in the English language. He has apparently arranged these fragments under different heads in a common-place book, and then persuaded a publisher to print them on excellent paper and in bold type. The author's own experience has been large: 364 cases of lithotomy. Unfortunately, of only 300 of these does he know the result. Of the 300, 191 were in children, of whom 7 died; 109 in adults, of whom 18 died, or one in 6·05. We cannot see the slightest advantage which could accrue to any one who has already even a small collection of surgical works, from the possession of this book.

4. *Lithotomy: Its Successes and its Dangers. Being a verbatim Report of an Inquest held before the City Coroner.* With a Preface and Commentary by a Practical Surgeon. Melbourne: F. F. Baillière: 1876.

As there is no author's name on the titlepage, we forbear to say more than that the title of this work is curiously inaccurate, there being no evidence of successful lithotomies; and that the trial or inquest is absolutely devoid of any scientific value or even interest.

The Essentials of Bandaging; with Directions for Managing Fractures and Dislocations, for Administering Ether and Chloroform, and for Using other Surgical Apparatus. Illustrated by 128 Engravings on Wood. By Berkeley Hill, Professor of Clinical Surgery in University College, etc. Third Edition, Revised and Enlarged by a New Chapter on Surgical Landmarks. London: Smith, Elder, and Co.: 1876.

This useful little work keeps up its reputation. For students of other schools than University, it may be somewhat perplexing to find that, for the treatment of nearly all fractures, guttapercha moulds are needed. The chapter on Surface Guides and Landmarks will not be useful, if it prevents any one from buying Mr Holden's book on the same subject.

Landmarks, Medical and Surgical. By LUTHER HOLDEN, F.R.C.S., Senior Surgeon to St Bartholomew's Hospital. London: J. and A. Churchill: 1876.

AN experienced teacher and examiner, surgeon as well as anatomist, no one could have a better right than its author has to produce a work like this, which, though small, is ambitious, and, if not done perfectly, must prove a failure. Superficial observers might think this an easy subject, but students, and especially skilled teachers, know it to be difficult. In the seventy-four widely printed pages which make up this little book, an amount of information is compressed which might have been diluted into a large volume. It is "easy reading," because the writing of it has been hard. It is at once accurate, concise, and practical.

As a specimen, we quote the short paragraph on the Anatomy of Tracheotomy:—"Those who have not directed their attention to the subject, are hardly aware what a little distance there is between the cricoid cartilage and the upper part of the sternum. In a person of the average height, sitting with the neck in an easy position, the distance is about one inch and a half. When the neck is stretched, about three-fourths of an inch more is gained. Thus we have generally not more than seven or eight rings of the trachea above the sternum. None of these rings can be felt externally. The second, third, and fourth are covered by the isthmus of the thyroid gland. The trachea, it should be remembered, recedes from the surface more and more as it descends, so that, just above the sternum, in a short, fat-necked adult, the front of the trachea would be quite one inch and a half from the skin."—P. 15.

We quote no more, but rather advise the purchase of the book, which has the same quaint turns of expression and aroma of classical and antiquarian knowledge which rendered "The Bones" of the same author so charming.

Guide to Pitkeathly Wells and Neighbourhood. Perth: Leitch & Leslie.

THE fashion of the present day is to send our invalids as far as possible from home—too often at great inconvenience, and considerable pull on the purse-strings. In these hard times, when everybody has lost money in Turks or Egyptians, it would be well if fashionable doctors would remember that there are many pleasant places near home, where excellent mineral springs are to be found, and quietness and fine scenery may be more easily, and certainly more cheaply, obtained. The mineral waters of Pitcaithly or Pitkeathly, near Bridge of Earn, have been long and justly celebrated. In this excellent little handbook we have an account of the place, a chemical analysis of the waters, and an excellent description of their effects from the pen of Dr Laing, who has long practised at Bridge of Earn.

The Book of Prescriptions. By HENRY BEASLEY. Fifth Edition. London: J. and A. Churchill: 1876.

THIS "book" is said to contain more than 3000 prescriptions collected from the practice of the most eminent physicians and surgeons, English and foreign. It comprises also a compendious history of the materia medica, lists of the doses of all the officinal or established preparations, and an index of diseases and remedies. In the *preface* we are told that the desire of the editor has been "to compile a volume, sufficiently comprehensive, in which the prescriber might find, under the head of each remedy, the manner in which that remedy could be most effectually administered alone, or in combination with other medicines." The object is so far good, but we doubt if it has, to any great extent, been realized. The way to teach students and others to be accurate prescribers is, not to put before them a large number of prescriptions, but to explain the principles of prescription-writing. No man will ever acquire eminence as a prescriber who writes his prescriptions from a book even of 3000 prescriptions, many of which are neither elegant nor accurate. It is inelegant to introduce Latin and English in the same prescription, as occurs at page 6 of this work. No doubt, this work contains many curious prescriptions—many of them of old and distinguished physicians—but the plan adopted by Mr Beasley of merely quoting these authorities, and leaving the student to come to any conclusion regarding them, is not the surest way to teach elegance and accuracy in prescription-writing; as, for example, under *Copaiba*, Mr Beasley gives twenty-six prescriptions, but says not one word to guide the perplexed student to the "manner in which that remedy could be most effectually administered." In the index of diseases, we conceive that certain remedies are omitted which should have found places in any such *index;* such as iodide of potassium for aneurism, nitrate of amyl for angina pectoris, hydrate of chloral for delirium tremens, etc. etc.

The description of the medicines, and their actions and uses, are, however, on the whole, correctly given.

The Druggists' Advertiser and Trade Journal. New York: 1876.

THIS is a monthly journal "devoted to the interests of the retail druggists of America," and promises to give, "in a condensed form, the cream of all that is worth gleaning from the current literature of the times, including the transactions of the different societies and associations." Its columns are also to be open "for the reception of original articles." It contains also a useful list of "prices current." From the numbers before us, we expect that this new journal will attain a wide circulation.

The Dispenser's Chart. London: H. K. Lewis.

THE object of this *chart* is to "show at a glance the formulæ of preparations in constant use by the general practitioner quickly and readily made."

We cannot recommend this work. General practitioners who prepare their own medicines should invariably do so from the British Pharmacopœia, and not from any charts, however accurate. It is far more important that a substance should be correctly than "quickly and readily" made. We cannot believe that any good end will be served by the publication of the "Dispenser's Chart."

Fifteenth Annual Report of the Larbert Institution for Imbecile Children.

THIS interesting report contains several careful statistical tables, illustrating the acquirements and capacities of the idiot children, ranging from those who can neither speak nor understand speech, to those who can speak, read, and work. Dr Ireland dwells strongly on the fact that children, sent into the Institution before they are seven years old, are unable to help themselves, or to learn any work, and so increase the expenses of the house, the work of the teachers, the mortality, and are discharged at the expiry of their five years' training without benefiting nearly as much as if they had been admitted at the age of seven years.

Dr Wilburd, who has had great experience in the treatment and training of idiots, pointed this out more than twenty years ago, and states that the most teachable age for idiots is "the proper school-attending age of ordinary childhood—that is, between seven and fourteen. Then, their whole organization is more flexible, more susceptible of development. The physical infirmities with which idiocy is connected, or upon which it is dependent, are more amenable to the proper rules of diet, regimen, or medicine." This appears to be the generally accepted view in America, where the education of this unfortunate class is more advanced, and the provision for them of the State is more liberal, than here. However, the late Government grant of four shillings a week to the district asylums has also been allowed for patients sent by Parochial Boards to this and similar establishments; and the support will, no doubt, be of material assistance to such institutions by increasing their efficiency, and making them more able for the work they have to perform.

The Commissioners in Lunacy report most favourably of the Institution. The order, sanitary condition, means of education and recreation, are all commended as conducing "to furnish a comfortable home to many who would otherwise be exposed to neglect and misery."

Part Third.

PERISCOPE.

MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By W. Handsel Griffiths, Ph.D., L.R.C.P. Ed., Licentiate of the Royal College of Surgeons of Edinburgh; Lecturer on Medical Chemistry in the Ledwich School of Medicine, Dublin; Corresponding Member of the Therapeutical Society of Paris; Honorary Member of the Ontario and Chicago Colleges of Pharmacy, etc.; Librarian to the Royal College of Surgeons in Ireland.

[The author of these Reports will be glad to receive any books, pamphlets, or papers relating to Materia Medica or Therapeutics. They may be forwarded through the agencies of the *Edinburgh Medical Journal.*]

Conium.—In an able paper, Dr Lautenbach calls in question the conclusions of Dr Harley as to the action of conium. He dissents entirely from that writer's views as to the peculiar action of conium on the corpora striata, and cites many experiments which go to prove that the drug acts generally by paralysis of the peripheral ends of the efferent or motor nerves. It exerts a depressant action on the spinal motor tract. Conium is not a hypnotic, but in inducing complete repose of the muscular system it predisposes the brain for sleep. When convulsions are induced by conium, they are due solely to the action of the drug on the brain. In medicinal doses, conia first increases the number of heart-beats, and then causes a decrease in the original number of pulsations; in poisonous doses, the subsequent decrease is much greater than the primary increase. The primary increase is due to paresis or paralysis of the pneumogastric centres. Arterial pressure is at first lessened by conia, but very soon rises to much above its original height; at first it increases and then diminishes the number of the respiratory movements, the primary increase being due in this case also to paresis of the pneumogastrics. It sometimes causes vomiting when subcutaneously injected. The only secretion increased by conium is the saliva; it does not influence the quality or quantity of urine, nor does it affect the function of the skin. In poisoning by conia, the voluntary muscles are unaffected, but its action on the non-striated muscular fibres is pronounced. Locally applied, it produces contraction of the pupil; but when absorbed into the system, it produces dilatation. It causes an increase of bodily temperature. It does not repress sexual desire, nor does it cause atrophy of the testes, mammæ, or ovaries. The fact that it affords relief in certain morbid states of the sexual system, as in cases of exhaustion and irritability from self-abuse, etc., is attributable to its depressant action on the cord rather than to any action on the sexual organs. Conia probably undergoes no change in the system.—*Phil. Med. Times*, 17th April 1875.

Writing of the action and uses of conium, Dr Charles Baker says that its value is somewhat dependent on the locality in which it grows; in Russia, for instance, it is said to be almost destitute of medicinal virtue. In its primary operation, it is alterative and narcotic; and in its secondary action, it is very moderately laxative, probably owing to its cholagogue action. In certain conditions, it is emmenagogue, and is also said to be aphrodisiac. Conium is very efficacious in removing subacute inflammation of a scrofulous or arthritic type; it allays morbid irritability and restlessness, but is not hypnotic. The bruised or scalded leaves form an useful application for allaying pain and resolving inflammation. In irritable or cancerous ulcer, conium acts more efficaciously in subduing the torment than probably any other drug. As a narcotic, conium is useful in nervous toothache, and in the various forms of neuralgia. In dysmenorrhœa, amenorrhœa, and in chlorosis, it is of essential service. In deleterious doses, conium causes uneasiness about the epigastrium, vertigo, a sense of fulness or pressure upon the orbits, and sometimes convulsions.—*Cincinnati Medical News*, July 1875.

Digitaline.—According to Otto, digitaline excites fever. 0·06 grammes given by the mouth, or 0·002 grammes subcutaneously injected, produced a rigor and an elevation of temperature. It takes about ten hours for the drug to produce its full effect, and the period of defervescence was of about the same length.—*Deutsch. Klin. Med.*, xvi.

Hyoscyamine.—Dr Petois relates two cases of uncontrollable vomiting in pregnancy, which were cured completely by hyoscyamia after all the usual remedies had failed. He gave a teaspoonful hourly of a mixture containing 5 milligrammes of hyoscyamia in 125 grammes of water.—*L'Union Médicale*, 14th September 1875.

In a paper by Dr Robert Lawson, in the *Practitioner* for July 1876, he records his experience of the treatment by hyoscyamine of recurrent, acute, and subacute mania, in the monomania of suspicion, and in the excitement of senile dementia. It produces, if given in sufficient quantity, a very subdued condition, accompanied by almost complete paralysis of the voluntary muscles, a quiet and refreshing sleep supervening. From a consideration of the nature of the phenomena produced by hyoscyamine, Dr Lawson was led to administer that drug in cases of excessive excitement accompanying or resulting from many brain diseases. He speaks in high terms of this treatment, and relates some strikingly illustrative cases. He found that doses of a grain to a grain and a half of the alkaloid produced almost immediate effects, at once quelling the fury of mania. The potency and permanency of the action of individual doses of hyoscyamine appear to be characteristic of this drug. The disadvantage of this mode of

treatment is, that the dose required to combat extensive excitement may also be sufficient to produce such an effect on the heart and respiratory organs as to cause danger to a form wasted by prolonged fury, by starvation, or loss of sleep. The following is the form of administration advised by Dr Lawson:—

℞ Hyoscyamine, . gr.i.
Spt. ætheris, . ♏viii.
Alcoholis, . . ♏xxiv.
Aquæ font. ad . ℥i. Fiat haustus.

Dr Lawson suggests that hyoscyamine may prove useful in gonorrhœa, colliquative sweatings, etc. In spasmodic stricture of urethra he has found it to afford relief.

Veratrum.—H. Weppen has extracted from the root of white hellebore a bitter principle, which appears to be a glucocide, and which he names veratramarin. Its action and effects have not yet been investigated.—*Arch. Pharm.*, vol. ii. p. 101.

D. W. W. Alexander strongly recommends veratrum in pneumonia and in other acute inflammatory diseases. He pushes it until the pulse falls, the skin softens, and the heat subsides. If vomiting supervenes, he suspends the administration of the drug, and gives a smaller dose on resuming its administration.—*Phil. Med. and Surg. Reporter.*

The following are Dr Th. Sidls's conclusions as to the effect of veratrum in acute sthenic pneumonia:—In the majority of cases treated with this drug there was either a temporary or permanent reduction of the temperature, and of the frequency of the pulse, but in other cases it exercised no appreciable influence. The effect on the fever, whatever its degree, was not attended by any corresponding reduction of the normal duration of the febrile process, nor was the typical character of the primary lobar pneumonia obliterated by the treatment; on the contrary, it became more clearly pronounced. Minor variations in the febrile symptoms were proved to depend, not on the action of veratrum, but on the character and amount of the inflammatory process in the lungs. Over the latter the drug exerted no action whatever. It was found that vomiting, collapse, and other unpleasant effects, more often followed the use of veratrum album than was the case with veratrum viride; but neither drug appeared to modify either the fever or the physical condition of the inflamed lung.—*Deutsches Archiv. für Klin. Med.*

A case of a boy, aged 6 years, the subject of severe epileptic convulsions, is recorded by Dr E. E. Riopel as having been treated successfully with veratrum viride. The result of the treatment was an entire cessation of the convulsions —*Cincinnati Lancet and Observer*, July 1875.

The Action of Certain Salts of Iron.—Rabuteau finds from experiments on his own person, that during the administration of

iron the amount of urine is unchanged, but its acidity is increased; a fact which would justify the use of ferruginous preparations in cases of phosphatic urine, lithiasis, and oxaluria. The amount of solids and the urea were increased about 10 per cent., hence iron increases tissue-change. Rabuteau alludes to the rise of body temperature under the influence of iron, first observed by Pourowski, as evidencing increased oxidation.—*Comptes-Rendus.*

The tendency of iron to constipate may be lessened or prevented by combination with tincture of belladonna, three or four drops to each dose.

Tartrate of Iron and Potash.—Bourguignon finds that in chronic wounds generally, and especially in varicose ulcers of the leg, with hard, well-defined edges and unhealthy surfaces, this substance acts beneficially, generally effecting a cure in two or three months. He uses a solution of from two to six parts of the salt in 100 of distilled water, a few drops of ammonia being added to prevent precipitation. Pledgets of fine charpie soaked in this are applied to the ulcer night and morning, and covered over with a thick layer of cerate. Given internally, the tartrate of iron and potash is valuable in chlorosis, chloro-anæmia associated with gastralgia. In dyspepsia, a mixture containing this salt will be borne when other solid preparations of iron will not be tolerated by the stomach.—*L'Union Médicale*, 30th March 1876.

Benzoate of Iron and Cod-liver Oil.—Benzoate of iron is more soluble than other preparations of iron, and forms a less nauseous combination with cod-liver oil. To prepare the ferrated oil, 10·5 grammes of the perfectly dry salt are triturated with 4 grammes of the oil. After repeated shaking, it is set aside for several days to deposit, and the supernatant liquid is then drawn off. It should be preserved from sunlight.—*Pharm. Central Halle.*

Perchloride of Iron.—Dr Russell Reynolds, at the meeting of the British Medical Association in Edinburgh last year, read a paper on the treatment of acute rheumatism by tincture of perchloride of iron. He cited a number of cases showing that by this remedy relief is early afforded, not only from pain, but from abnormal heat. His treatment consisted in the administration of doses varying from 15 minims to a drachm every four hours, with or without 20 or 30 minims of glycerine and spirit of chloroform.

In the *Medical Times and Gazette*, 3d April 1875, Mr Clarence Foster calls attention to the great utility of the external use of tincture of perchloride of iron in erysipelas and other forms of local inflammation when unattended by breach of surface. In scrofulous swellings of the neck he states that its discutient properties are far superior to those of iodine. When an inflamed breast or inguinal gland threatens to end in suppuration, the early use of the tincture every other day or so will be sufficient to effect resolution. In the inflamed joints of acute rheumatism, etc., its external use is also attended with much benefit.

Muriate of Iron.—The August number of this Journal contains an interesting paper from the pen of Dr Charles Bell, in which he strenuously advocates the treatment of erysipelas by tincture of muriate of iron. He holds that a natural difference exists between the effects of the two so-called similar preparations of iron—viz., the muriate and the perchloride. He insists particularly on the administration of the former preparation in full and frequent doses.

Acid Sulphate of Iron.—Dr Sabbata recommends as a gargle in diphtheria,—sulphate of iron, 5 grammes; dilute sulphuric acid, 25 drops; water, 100 grammes. For local application with a hair pencil he uses a stronger solution. He affirms that this destroys the odour, and removes the eschar in the submucous tissue. Of forty cases treated thus, together with the internal administration of hyposulphite of soda and tannate of quinine, the mortality was at the rate of 12·5 per cent.—*Annali di Chemica applicata alla Med.*, Oct. 1875.

The Action of Certain Salts of Soda.—*Bicarbonate of Soda in Toothache.*—Dr Dyce Duckworth records a case of severe toothache, which was almost immediately cured by the application of a solution containing about half a drachm of bicarbonate of soda in an ounce of water, after other remedies, as chloroform, etc., had failed. —*Practitioner*, April 1875.

Bromide of Sodium in Epilepsy.—Dr A. Hollis, in the *British Medical Journal*, 1st July 1876, gives an analysis of a series of cases in which this drug acted very beneficially; under its influence, in doses of from two to twenty grains thrice daily for some weeks, the fits became considerably reduced in frequency.

Choleate of Soda in Gall-Stones.—In the *American Journal of Medical Sciences* for April 1876, Dr W. C. Dabney records his experience of the use of choleate of soda in preventing the formation of gall-stones. The treatment was originally proposed by Professor Schiff. Dr Dabney finds that the action of this salt is too gradual to be of any use in cases where the calculi are already formed; it is only of use as a preventative. Schiff gives about 7½ grains of it twice daily. Being insoluble in water, it is best given in the pilular form. It is probable, as Dr Dabney suggests, that choleate of soda may prove beneficial in some cases of enfeebled digestion when the bile seems at fault.

Hyposulphite of Soda in the Treatment of Boils.—Dr L. Duncan Bulkley states that hyposulphite of soda, in doses of 30 grains three or four times daily, largely diluted, and on an empty stomach, is the treatment mainly adopted by him for preventing the formation of boils. Should this fail, he gives large doses of quinine.—*American Practitioner*, May 1876.

Hypophosphites of Lime and Soda in Phthisis.—Dr Charteris of Glasgow states that he finds that these salts have the property of checking the night-sweats of phthisis. He records several cases in

which the patient's health underwent considerable improvement while taking the hypophosphites.—*Lancet*, 13th May 1876.

Lactate of Soda as a Hypnotic, etc.—According to Preyer, a condition closely resembling natural sleep is effected by the subcutaneous injection of a concentrated aqueous solution of lactate of soda or by large doses of the salt given by the mouth. There were great differences in regard to the time, duration, and intensity of the sleep. Preyer remarks that lactate of soda deserves investigation as an antipyretic, and as a calmative in mania and in certain forms of convulsive disease. He found that this salt deepened and reduced in frequency the respiration, diminished reflex irritability, and in warm-blooded animals lowered the temperature, especially if given in large doses.—*Centralblatt für die Med. Wissenschaft*, August 1875.

L. Meyer in several cases administered subcutaneously 0·6 grammes of lactate of soda two or three times daily. Pain occurred in the part, and nausea and vomiting set in; sleep or even ease was not procured; 10 or 15 grammes given by the mouth gave relief from pain in all cases, but in some of these it caused nausea and vomiting. Combined with morphia it yielded much more satisfactory results. He found that lactic acid acts similarly to the soda salt. Meyer concludes that the value of this drug is shown by the diminution of the requisite dose of morphia.—*Virchow's Archiv*, Band 66, Heft 1.

Nitrate of Soda in Dysentery.—Dr Caspari gives large doses of nitrate of soda in acute dysentery, and finds that it is as effectual in rectal as in the intestinal forms of the disease. He gives from 3 to 6 drachms in divided doses in the twenty-four hours. The solution should be warm.—*Bull. Gén. de Thér.*, 30th June 1875.

CHANCELLOR INGLIS: A Graduation Song for 1876.

Air—"Kate Dalrymple."

[We are privileged to present to our readers a Graduation ditty, which was admirably sung at the customary festive meeting of the new Graduates by Mr Dundas Grant. Though it bears to be the utterances of a young M.B., it is understood to be a *nuga* by an old hand.]

I'm passed, I'm passed,
And capped at last;
I'm qualified and free now,
On pasteboard neat,
Or brass door-plate,
To write myself M.B. now.
I'm full of joy,
Without alloy,
And my whole frame with pleasure tingles,
Since in gown and in hood,
I've been capped by the good
And magic hand of Chancellor Inglis.

How proud my mien
When I hear the Dean
Proclaim my name and nation!
How swells my heart
When I play my part
In this great graduation!
For there's one with a pair
Of blue eyes fair,
Who from the rest my figure singles,
And feels as if she
Were a bit of me,
When I am capped by Chancellor Inglis.

How pleasant the tap
Of the velvet cap,
Which old tradition teaches,
Was made from the rear
Of a half-used pair
Of George Buchanan's breeches.
I don't know well
If in this tale
The mythic with historic mingles,
But the cap is a fact,
And so is the tact
Of the erudite hand of Chancellor Inglis.

I yet know not
Upon what spot
In practice I may settle,
Or if folks will see,
As they ought in me,
A man of sterling metal.
But when the due
Fees shall accrue,
And the sovereign with the shilling jingles,
Its pleasant little chime
Will recall the time
Of the magic touch of Chancellor Inglis.

My future home
May be in some
Of England's rich domains now,
Or in the North
Beyond the Forth,
Among the mountain-chains now;
Or it may by
The Borders lie,
'Mong Johnstones, Elliots, Scotts, and Pringles;
But wherever it be,
I'll teach them to see
The worth of a man that was capped by Inglis.

And who can say,
But some fine day,
When practice then increases,
To my door there may come
A neat little brougham,
And pair with smartish paces:
And when folks spy
My nags go by,

Their collars, traces, reins, surcingles,
They'll say, without doubt,
That's a smart turn-out
Of the man that was capped by Chancellor Inglis.

And when I may,
On holiday,
Enjoy release from duty,
With a sweet little wife,
The charm of my life,
Admiring nature's beauty ;
Then when we roam,
Away from home,
In sunny fields or bosky dingles,
We'll both of us know
That the pleasure we owe
To the magic touch of Chancellor Inglis.

Now long may he
Our Chancellor be ;
Now let the glasses clatter
To his health, and the fame
Of the ancient dame
That is our Alma Mater ;
And as the Tay
And mighty Spey
Flow full-streamed over rocks and shingles,
Let the red wine now
In rivers flow
To the jolly good health of Chancellor Inglis.

M.

Part Fourth.

MEDICAL NEWS.

At the last Edinburgh University Graduation Ceremony, 20 Candidates received the degree of Doctor of Medicine, 85 the degrees of Bachelor of Medicine and Master in Surgery, on Tuesday, 1st August. At the conclusion of the ceremonial, the following Address was delivered by Professor Lister :—

Gentlemen,—To those of you on whom the degree of M.D. has just been conferred, I will simply express the hope that the higher and more dignified title which you have received will stimulate you to strive more earnestly than ever to uphold the honour of your profession, and reflect lustre on your Alma Mater.

It is those who have now acquired, for the first time, together with a University degree, a licence to practise, to whom it is my duty specially to address myself on this occasion. You, Gentlemen, have been placed, by the ceremony which we have just witnessed, in a totally new position, which it behoves you very carefully to consider. Hitherto, as students, you have been chiefly occupied

in storing your minds with facts observed by others, and with doctrines elaborated by others through more or less legitimate inference from such data. But from this time forward you must bear upon your own shoulders the heavy burden of responsibility of the accredited medical practitioner. In dealing with any case that comes before you for treatment, you must no longer be content to rest upon the authority of others. You must, if alive to the dignity and duty of your office, be satisfied with nothing short of an affirmative answer to the question, Am I clear in my conscience that I bring to bear upon this case as much science and skill as are attainable in the present state of human knowledge? This may, indeed, appear a very high standard; but in direct proportion as we allow ourselves to aim at anything lower, do we degrade our noble profession, and allow medicine to degenerate into quackery.

But some of you may be disposed to reply, It is too late at the close of our studentship to urge upon us any further improvement. We are such as we are in mental capacity, and we have received from our University the medical equipment that must last us for our lives, and with this armour we can but do our best in fighting the battle against disease. Gentlemen, I give you an emphatic warning against resting thus satisfied with yourselves as regards either your intellectual capability or your professional attainment. The habit of mind too prevalent at the present day in the study of medicine tends to sacrifice everything to memory, and to dwarf the faculties which are most important of all for the practitioner—the power of accurate observation and sound judgment. Happily, however, you are not yet too old to correct this serious defect; and if, in the time of comparative leisure which will be your privilege as young practitioners, you set yourselves to work in good earnest to observe carefully and to think out by patient and laborious reflection the various questions which come before you for consideration, be assured that many of you will in no long time acquire a mental calibre very superior to what you now possess. And as regards your professional attainments, there is, believe me, at least as much room for improvement. In the preliminary or more purely scientific branches of knowledge you have no doubt amassed a store of information which must for the most part serve you for life. You are, we may hope, good anatomists, chemists, physiologists; and, be this as it may, few of you will be able to resume study in the dissecting-room, or in the chemical or physiological laboratory. But in that which is the most important matter of all, without which the scientific training to which I have alluded would be absolutely worthless to you as practitioners—in practical familiarity with the nature and treatment of disease—the short period of your curriculum, and the engrossing character of other studies, have left too many of you but poorly furnished. And, at the same time, Gentlemen, you are probably by no means

sufficiently alive to your deficiencies in this essential matter; for it is an unfortunate property of ignorance that it is ever unaware of its own existence. I commonly find that the gentlemen who serve under me at the Infirmary as house-surgeons are, when they enter on their office, pretty confident in their powers in the diagnosis and the treatment of surgical ailments, but grow more diffident and modest, though immeasurably more capable, as their term of service draws towards its conclusion.

Now, it is the holding of such hospital offices which I would earnestly recommend to you. You may perhaps imagine that you will have in private practice sufficient opportunities for supplementing your practical deficiencies. But this, Gentlemen, is not the fact. Take first the case of surgery. Surgical cases constitute a very small proportion of those which present themselves in general practice. But when they do occur their prompt and efficient treatment is a matter of tremendous moment to the sufferer; and under such circumstances you will find yourselves utterly at a loss if you have not been before engaged in the personal charge of surgical patients as they exist collected together in hospital wards. In medicine the want of practical hospital training is equally serious. For, numerous as medical cases are, their very nature can often only be discovered by a systematic method of observation, which can be acquired by patient hospital study alone. You cannot learn the art of physical diagnosis on a private patient, who expects you to treat him, not to study him. Yet without this art a man may go through a long life as a busy practitioner, muddling his practice and mismanaging his patients in a manner melancholy to contemplate, and the results of which it is too often shocking to witness. I therefore urge you, as you value the hope of usefulness and credit in your noble calling, to repress for a while the natural and laudable desire to do something towards gaining a livelihood, and so be no longer a burden on the finances of your parents; and assure them that a year from this time spent here or elsewhere in holding hospital offices will be by far the most valuable period of your studentship. And if you cannot all be house-physicians or house-surgeons, there are at our hospitals other offices of clinical clerkships which afford invaluable practical opportunities which our students have seldom time properly to use, and which our young graduates would do well to hold when the higher offices are not open to them. I sometimes think it would be a good thing to have salaries attached to our clinical clerkships, and to restrict them to legally qualified men. Then indeed these offices would be eagerly sought for and duly prized.

While we trust, Gentlemen, that all of you will be valuable practitioners, we hope that many of you will do much to advance our science and our art by publishing original researches. And here let me give you a word of advice against the publication of indefinite or immature observations,—a practice too frequent with young men eager to acquire a reputation. A man thinks he has

hit upon something new, and rushes at once into print in the fear that he may otherwise be anticipated by some one else, and is apt to think that, young as he is, it is a matter of comparatively little moment whether what he produces has any great intrinsic value or has been carefully elaborated. In such a view he is entirely mistaken. In the first place, the work which he does when his faculties are in their prime of vigour and prompted by youthful ardour, with plenty of time on his hands, will very likely prove, if he does his very best, the most valuable that his life produces. And, in the second place, with a view to his ultimate usefulness, which is the only legitimate ground for publishing at all, a man's early labours are in some respects the most important of all, because by them he has to make his reputation as a trustworthy and able investigator. And if he does acquire such a reputation, the reader of his works—appreciated perhaps only after his death—does not stop to inquire carefully at what precise period of the author's life the various papers were written. If we read an account of an experiment by John Hunter, we are satisfied to know that it was Hunter's observation. And so, Gentlemen, may it be with the works of some of you. It involves, no doubt, a great self-denial to plod on settling one after another the various difficulties that may suggest themselves regarding the theory to which you may be led; but, after all, we must remember that

> "Fame is no plant that grows on mortal soil,
> Nor in the glistering foil
> Set off to the world, nor in broad rumour lies;
> But lives and spreads aloft by those pure eyes
> And perfect witness of all-judging Jove.
> As He pronounces lastly on each deed
> Of so much fame, in heaven expect thy meed."

In investigating nature you will do well to bear ever in mind that in every question there is the truth, whatever our notions may be. This seems, perhaps, a very simple consideration, yet it is strange how often it seems to be disregarded. I remember at an early period of my own life showing to a man of high reputation as a teacher some matters which I happened to have observed. And I was very much struck and grieved to find that, while all the facts lay equally clear before him, those only which squared with his previous theories seemed to affect his organs of vision. Now this, Gentlemen, is a most pernicious, though too prevalent, frame of mind. When I was a little boy I used to imagine that prejudice was a thing peculiar to some individuals. But, alas! I have since learned that we are all under its influence, and that it is only a question of degree. But let us ever contend against it; and remembering that the glorious truth is always present, let us strive patiently and humbly to discover it. And considering that the weakness of our nature makes it often hard for men to recant an error to which they have once committed themselves, you will see an additional reason against rash and premature publication.

There is another matter on which I would venture to utter a word of warning to you, and that is the evil of anonymous medical literature. Young men are often tempted by the desire to turn what seems an honest penny to write reviews of books and leaders in our medical journals; and the result too often is that such persons come to write with a tone of authority upon subjects of which they know extremely little. This not only misleads the unwary reader, but exerts a most injurious influence upon the writer. First, it leads him to grievous habits of inaccuracy upon matters of fact; and, secondly, it tends to make him treat with indifference the character of the author whom he criticises, which he ought to regard with the most jealous and sacred care. Thoughtlessly, perhaps, he stabs in the dark, and writes that to which he would not dare to affix his signature, forgetting that

> "He who filches from me my good name
> Robs me of that which not enriches him,
> And makes me poor indeed."

I verily believe that the evils done by anonymous medical literature greatly preponderate over its advantages, and I strongly advise you to be very careful how you meddle with it.[1]

Gentlemen, it may seem to you that these imperfect pieces of advice indicate to you that there lies before you a somewhat steep and thorny path; and truly, if we had nothing but pecuniary rewards and worldly honours to look to, our profession would not be one to be desired. But in its practice you will find it to be attended with peculiar privileges; second to none in intense interest and pure pleasures. It is our proud office to tend the fleshly tabernacle of the immortal spirit, and our path, if rightly followed, will be guided by unfettered truth and love unfeigned. In the pursuit of this noble and holy calling I wish you all God-speed.

List of Indian Medical Candidates who were successful at both the London and Netley Examinations, having passed through a course of instruction at the Army Medical School, Netley, August 1876.

	Marks.		Marks.
† 1. Tomes, A.,	5816	13. Henderson, W. G. H.,	4426
2. Meredith, E. B.,	5220	14. Doyle, B.,	4412
3. Mawson, W. A.,	4902	15. Cobb, R.,	4266
4. Maitland, J.,	4856	16. Stephens, A. E. R.,	4259
5. MacGregor, J.,	4837	17. Cadge, W. H.,	4220
6. Peevor, G. H.,	4818	18. Hunter, J.,	4085
7. Dantra, S. H.,	4746	19. Swaine, C. L.,	4067
8. Macdonald, D. J.,	4650	20. Smith, M. H.,	3966
9. Stewart, A. K.,	4625	21. Dalal, K. A.,	3920
10. Walker, G. L.,	4502	22. Boyd, H. W. B.,	3886
11. Hamilton, H.,	4462	23. Farrell, P. J.,	3662
12. Halpin, J. N.,	4440		

† Gained the Herbert Prize.

[1] "Let the galled jade wince, our withers are unwrung."—[Ed. *E. M. J.*]

THE bill just brought into the House of Lords by Lord Carnarvon, for the regulation of vivisection, bears the unhappy title of "A bill to prevent cruelty to animals." If it was the design of its introducer to deliberately insult the scientific investigators of Great Britain, he has succeeded admirably as regards the title of the bill. If it was his intention to restrict scientific inquiry, while permitting any and every other form of inflicting pain upon animals to remain unchecked, he has been equally successful.—*Philadelphia Medical Times*, 22d July.

OBITUARY.

HENRY LONSDALE, M.D.—Henry Lonsdale, who died on Sunday, 23d July, at his residence at Rosehill near Carlisle, though a comparatively young man, had to a considerable extent dropped out of the notice of the purely medical world. With ample means and somewhat delicate health, Dr Lonsdale lived in learned and retired leisure, surrounded by flowers and books, out of the bustle and turmoil of professional life. Yet, his leisure was not idleness, for he turned his active mind and graceful pen to good account, and, in addition to six volumes of biography of Cumberland worthies, the interest of which personally and locally is very great, he also wrote two most excellent medical biographies. Knox and Goodsir, two men of similar pursuits, but in character and conduct wide as the poles asunder, had both been intimate friends of Dr Lonsdale, and it fell to his lot to write the biography of each; very different books, as they were very different men, yet each book has a common tie in the individuality of the author.

Lonsdale had been a favourite pupil of Dr Knox, having won his notice by taking the Senior Anatomical Prize in competition with students of the third and fourth year, while he himself was only in his second year.

In his third year he was appointed Dr Knox's assistant, and in 1840, when only twenty-four years old, he was cordially invited by Knox to become his partner, delivering the course of demonstrations in anatomy, and superintending the dissecting-rooms. The retirement of Dr Knox from Edinburgh rendered the partnership a brief one; but Dr Lonsdale knew enough of his former master to be able to write a life of very great interest. In 1841, Dr Lonsdale made and published some original observations on the terminal loops of the nerves, describing the manner in which the nerve fibres terminate in the brain and spinal cord of man.[1]

Along with other distinguished men, some of whom still survive, he carried on anatomical lectures, worked at the Royal Public Dispensary, and occupied the Presidental Chair of the Royal Medical, Hunterian, and other Societies. He was also an intimate friend and associate of John Reid, the Goodsirs, Edward Forbes, Samuel Brown, and Hughes Bennett. Hence he was fitted, by his

[1] Edin. Med. and Surgical Journal, Oct. 1843.

personal knowledge and by his learned leisure, to write the biography of the greatest of them all, John Goodsir.

His own stay in Edinburgh was a short one, as his health broke down under stress of work. He became liable to bronchitis, and before he was thirty had to leave Edinburgh and return to Carlisle, where he settled as a physician, and soon gained a large practice.

When, in 1851, his marriage had placed him in a position independent of practice, he gradually retired from it, and devoted the last twenty-five years of his life to self-culture, art and letters, and chiefly to the literature and biography of Cumberland worthies. The book by which he will be remembered best by the general public is that in which he describes the life and works of Musgrave Lewthwaite Watson, the sculptor. Fond of travel, and able to indulge his fondness for it, with talents and leisure, and yet no tendency to rust in idleness, Lonsdale's life was in all probability a fairly happy one. Had his health been better, he might have made a deeper mark on the science of medicine; as it is, several papers, most of them published in our own pages, will serve to show his powers. He will be remembered by the medical profession chiefly as almost the very last of the marvellous brotherhood of the Friends of Truth, whose works and ways he has chronicled so well in his Life of Goodsir, where, with a somewhat plaintive strain, he tells us that "Now he can but take a glance at those inspiriting scenes in which he played a humble part; and conscious that such examples of 'feasts of reason and flowings of soul' can have no revival to him on this side of the Stygian shore, claims indulgence for looking back upon them, much as the Eastern traveller homeward bound casts a lingering look upon the classic lands disappearing below the horizon, and bids them a last adieu."

CORRESPONDENCE.

MALTA FEVER.

To the Editor of the Edinburgh Medical Journal.

SIR,—In the July number of the *Edinburgh Medical Journal*, I observe an article by Mr Oswald Wood, of the Army Medical Department, on so-called "Malta Fever." If severe suffering from a disease gives one a right to be heard on the nature of that disease, Mr Wood has that right, for I was a pained witness to at least a considerable part of his sad experience at Netley; and as one of his old teachers in the Army Medical School, I may be allowed, without presumption, to say, that he has written well on the disease from which he suffered so bitterly. As Mr Wood has, in the course of his observations, made reference more than once to what I have said and written on this form of fever, perhaps you will allow me space for a few remarks.

Mr Wood objects to the term, purely provisional, of *typho-malarial*, applied by me to designate this affection, giving the preference to the term "Malta fever," which, however, is, by his

own showing, objectionable, as giving "a local habitation and a name" to a fever not confined, as he admits, to Malta. Mr Wood's objection to the term used by me is, of course, based on the opinion he holds, that there is no malarial element in the disease. Now, this is a much more important question than the mere name of the affection. Perhaps Mr Wood will permit me to say, that for one victim of Malta fever seen by him in his, of necessity, limited experience, I have, in the last seventeen years, seen at least fifty, so that if I am wrong in my belief that this disease is a hybrid, bred of filth (fæcal) and malaria, I must admit faulty power of observation, and incapacity to reason on the facts observed, and not lack of opportunity for clinical study.

The fæcal saturation of the part of the island occupied by troops, is a fact so notorious that it need not be insisted on here. That this is the chief factor in the causation of the disease is admitted on all hands. Mr Wood gives abundant proof of it in his sound observations on this point. At page 43, Mr Wood so expresses himself as to lead your readers to infer that I hold the theory of the sole malarial origin of the fever, probably quite unintentionally, as the very term used by me, *typho-malarial*, contradicts such a view.

I wish also to have it well understood, that it is not merely because the spleen is so generally enlarged in this fever, that I believe there is a stout thread of malaria running, so to speak, through it. I know very well that an enlarged spleen is common to every form of septic fever. I judge rather from this fact—for fact it is—that in the majority of cases seen by me, at some stage of the affection, sooner or later, more often late than early, the fever assumes a distinctly paroxysmal character. It was so most plainly in Mr Wood's own case after his return to Edinburgh. Where did he get the malarial element, the parent of this form of fever, into his system? It was not at Netley, for there is no malaria there. For more than fifteen years before one stone of the Royal Victoria Hospital was placed on the top of another, an old ten-gun brig was beached on the mud about a hundred yards to the westward of the hospital site; this old, and in many respects unsanitary tub, was used as a quarter for the Coastguard, and I have the authority of the naval medical officer in charge for the significant fact, that he never saw a case of intermittent fever among the men. Nor is this disease known to the farmers or labourers in or about the neighbourhood of the hospital. It was not the habit of the monastic orders to plant monasteries in malarious situations. Where, then, I ask again, did Mr Wood get his malaria? Surely it was not in the good, wholesome, and sanitary quarter in which he lived on his return to his family? He never was on any other foreign station. If, therefore, he did not get the cause of distinctly paroxysmal fever at Malta, where did he get it? "Surely," says Mr Wood, "it is scarcely credible that true malaria can exist in the dry and rocky soil of Malta." When my young friend wrote this sentence he was at the moment oblivious of the not uncommon

examples of paroxysmal fevers, some of them very fatal, originating in soils as "dry and arid" as that of Malta. It is not only in the hospital at Netley that I have seen soldiers, invalided home from Malta on account of this fever, go through this distinctly paroxysmal stage, but in officers to whom I have been called in the hotels in Southampton, who have for days, and even in some cases weeks, been unable to go to their homes on this account; several of whom, as I have learned from themselves or their friends, have, on their return home, gone through the rheumatic and neuralgic phenomena from which Mr Wood suffered, and of which he has given us, in the article under notice, so graphic a description. Nor is this my experience only; I have seen at Netley and elsewhere many naval medical officers of experience, who have not only treated this fever in its home, but have had, like Mr Wood, bitter experience of it in their own persons, who are well convinced of the fact that malaria is one, and often not the least important, factor in the causation of this affection. I must also add, that this hybrid form of disease is now recognised in many parts of India, where fæcal impurities combine with malaria, and the term typho-malarial is used by many of our authorities there to designate the fever so caused.

One word as to the morbid appearances. I have for some years past, in my lectures here, dwelt on the curious resemblance between the condition of some of the organs and tissues, more particularly the muscular tissue, in septic fevers of this kind, attended with long-continued high temperature, and the appearances observed in death from heat-stroke; and I notice that Professor Arndt, of Berlin, has made the same observation, after dissecting the bodies of three soldiers who died in the ranks from sunstroke on a field-day in a hot sun.

I have urged a fair trial of ipecacuanha in the early stages of this disease, partly from my large experience of its powerful action on the intestinal glands, partly also because my late lamented friend and colleague, Professor Parkes, was much impressed with the value of this remedy in the early stages of typhoid. This done, I think the most powerful sudorific and febrifuge known to me, viz., Warburg's tincture, no longer lying under the reproach of being a secret remedy, should have a fair trial.

Will any two or three medical officers serving in Malta give us, briefly but fairly, the details of some thirty or forty cases, without one word as to any theory of causation? It would be a boon to science. Let me add this: the present sanitary state of Malta is simply a disgrace to its administration. The Maltese may love the stercoraceous atmosphere in which they live; but that is no reason why our costly, and hard to get and to keep soldiers, should be poisoned by it. The British Government has elsewhere accomplished more difficult tasks than to cleanse Malta and to keep it clean.—I am, Sir, your obedient servant,

W. C. MACLEAN, M.D.

Army Medical School,
Royal Victoria Hospital, Netley.

Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*On Malta Fever.* By J. LANE NOTTER, B.A., M.S., M.D., Diplomate in State Medicine, University of Dublin, etc., etc.

THIS disease formed the subject of an instructive paper by Mr Oswald G. Wood, M.B., in the *Edinburgh Medical Journal* for July last. His narrative is especially interesting as a record of the fever, as he suffered from it himself; nevertheless, as this fever appears under various forms and assumes different degrees of intensity, a short account of it by one who had an opportunity of seeing it in its island home may not be unwelcome.

Synonyms.—Simple continued fever, gastric fever, febricula, Malta fever, ephemeral or Mediterranean fever, remittent fever, bilious remittent fever, enteric or typhoid fever, gastro-bilious fever, infantile remittent fever, typho-malarial fever. These are the principal synonyms in use; many others may be added, but they will be found to be modifications of the foregoing. It is difficult to adopt a term to distinguish this disease, as it is extremely hard to select any one feature which is constant in every case. My own observation would lead me to class it under the head of typho-malarial fever, for reasons to be stated hereafter.

I fully endorse Mr Wood's suggestion that a distinct name should be given to this disease, and there can be none better than the one he reccommends, and by which it has been so long known, namely, "Malta fever." While advocating this, it must not be inferred from it that I believe this disease to be alone confined to Malta. Of this I am extremely doubtful; but my own experience does not allow me to say more. Suffice it for our present purpose to know that it is endemic in the island, and that it is one of the most distressing complaints a physician is called on to treat there.

The island of Malta lies nearly in the centre of the Mediterranean and almost within sight of Sicily. Although certain winds, —the scirocco wind blowing from the south-east,—are occasionally

uncomfortable, their inconvenience has been, I think, somewhat exaggerated. The surface of the island is undulating, and does not present any hills higher than 600 feet above the level of the sea. There are neither woods nor marshes, and the orange and lemon plantations are enclosed within garden-walls. The thermometer does not vary more than four or five degrees during the twenty-four hours from the end of September to the middle of May. The heat of summer is intense, unobstructed as it is by hills and woods or indeed vegetation of any sort. The civil population in 1874 = 145,599, and the usual peace garrison = 6000 to 7000.

Valetta is the chief town, with narrow streets and high houses, the streets crossing each other at right angles. The town is built on alluvium, with thick sandstone below, and beneath this the lower limestone (Parkes). The drainage is extremely bad, the sewers are "nothing but long cesspools," and, from the porous nature of the stone, the ground is in many places reeking with filth. I have seen a drain cut into the rock several feet deep, and the ground was saturated like a sponge with sewage filth, the rock disintegrated and foul to a degree.

Causes.—Youth may perhaps be considered the first predisposing cause; those who have reached thirty-five and upwards appear to suffer less; after this, season may take its place: but the real causes of this fever are to be found in the local conditions of drainage, aided, perhaps, by the moisture present in the air. In the hot summer months, the air is very stagnant, and loaded with fœtid organic matter given out from the rock.

During my service in 1872, one of the worst outbreaks of this disease took place in Fort Ricasoli, where the system of drainage was known to be imperfect, and which was otherwise placed in as favourable a position as regards sanitation as possible, being at the entrance of the Grand Harbour, and far removed from the town. The smell pervading the place was at times sickening; this arose from the system adopted of hand-flushing of the water-closets, which was not properly carried out, the result being the accumulation of soil in the sewer.

The Maltese are an exceedingly dirty race; they are very poor, and their diet is scanty and unwholesome. Meat they seldom touch, and wine only on feast days. They eat the coarsest description of food, bad bread, and disgusting fish. Their personal habits are offensive to a degree; they have little notion of decency, and every by-lane and corner is the receptacle for excreta, which dries rapidly, or possibly ferments, to be washed into the harbour, in which the water is stagnant, or pulverized and scattered with showers of dust all through the place. The condition of such a state of things, under the influence of a semi-tropical sun, can be more easily imagined than described.

Mr Wood states that cases occur out of Valetta and Cottonera;

in other words, away from the immediate haunts of filth. Such, undoubtedly, is the case. But are not these exceptional cases? Does not experience tell us that even Selema is healthy compared with Valetta? and I cannot call to mind one case in Fort Manoel during the time I resided there. To sum up, then, this disease may be stated to be essentially a filth disease, intensified by the climate and moisture present in the air. The climate in summer is almost tropical, and, as a result, we find our soldiers suffering from the effects of tropical heat; they become weak and debilitated, and dyspepsia prevails. Languor pervades all classes, and the appetite lessens; in fact, the constitution is lowered to a great extent, and this is evidenced by well-marked anæmia. New-comers appear to be more liable to be attacked, and suffer more severely, than those who have been long on the island; while those who have had ague previously, suffer, I think, most, though this latter disease can hardly be said to prevail to any extent. That malaria does exist in Malta, I think there can be no doubt. It does not require the miasma from a marsh to produce on the constitution fevers of a malarious type, and certainly there are factors sufficient at Malta to explain the occurrence of these diseases, which, though so closely allied to the agues, are by many classed under a distinct head. The character of the season, the amount of watery vapour present, the temperature, the aërial movements of the atmosphere, the evaporation going on from the porous sandstone rock, saturated as it is with sewage; surely these are sufficient to produce malaria, complicated as it unhappily is with enteric fever, each complicating the other, and masking the individuality of the separate diseases, sometimes the one, sometimes the other predominating, until we have such a wide nomenclature, that we are sorely puzzled under what head to give it a place.

As to the water supply being the cause, I must state, paradoxical as it may appear, the water supply in Malta is very good. I made over fifty analyses, and only in one instance had I any reason to find fault; these investigations were undertaken at all times, and under all conditions, and I have had only the same result to report. Under these circumstances, I think, I may fairly dismiss this as being the cause, except under some special case. The graphic description of this island by Mr Wood I can fully confirm. My experience leads me to believe that exposure to the sun is too often quoted as a predisposing cause. Better far have men actively employed, if provided with proper dress, than lounging in heated casemates, or passing their time between the canteen or miserable gin-shop and their bed. I well remember the intense heat that prevailed during the summer of 1868 at Quebec. The men of the Royal Engineers were at work during the whole day in trenches, with no shade whatsoever, and not a single bad result followed. The curse of life at Malta is the *ennui* which is

present, and if more time was passed in the open air, I am satisfied we should hear less of the unhealthiness of the climate. The cause then of this disease is, I maintain, a preventable one. It essentially consists in defective drainage, in having to sleep in houses and breathe air impregnated with fœtid organic vapours given off from saturated subsoil or filthy water-closets, aided by climatic conditions, which makes enteric fever in Malta assume a malarial type, and which would, under similar conditions in England, simply produce typhoid fever.

Symptoms.—These in the early stage are rather obscure. The attack is preceded generally by dyspepsia, languor, headache, a feeling of chilliness with great weakness, accompanied often with muscular pains in the preliminary stage. These symptoms are usually followed by a sharp rigor, with well-marked gastric derangement, and with tenderness, often very acute, in the epigastric region. In the more severe forms intense frontal headache prevailed, bilious vomiting and jaundice were present, with enlargement and tenderness over the spleen; when this was severe the temperature curve rose rapidly. There was an extraordinary feeling of restlessness present, and this was mostly associated with insomnia. Often in place of sleeplessness there was profound slumber, but this unfortunately brought with it no relief; it was in the strictest sense "unrefreshing sleep." As a rule, in the early stage there was no diarrhœa, and no chest complication, but there are many exceptions to this. Sometimes the stools are dark and hard, often loose and pale; they may be almost dysenteric in their character, but, unless in very severe cases, such is not seen until the close of the fever. I have found tenderness and gurgling over the iliac region present in nearly every case: perhaps this is the most constant symptom. There is seldom any pain or tenderness over the hepatic region, nor does the liver appear to be enlarged—in my experience it can seldom be felt, even when looked for carefully. The spleen is always enlarged, and exquisitely tender on the least pressure.

I have never seen any exanthem on the skin, except on one occasion, when I distinctly recognised rose-coloured spots near the umbilicus. The skin varies, sometimes hot, sometimes cool; the thermometer seldom records a high temperature in the early stage, and in this, as Professor Maclean points out, exists one of the peculiarities of this disease, that the temperature curve differs widely from true malarial fever, and that some days elapse before it attains its maximum, which appears to be 104° to 105°, and this is maintained for a lengthened period. The duration of the premonitory stage is very uncertain; often days pass, and the only symptom is the distressing *dyspepsia*, accompanied with intensly acid eructations, from which the patient suffers. He tells you he is feeling "aguish," and of this he is convinced, because he "perspired freely last night and feels better." The pulse ranges from 84 to 90, seldom

higher; the tongue is coated white, with red edges, and papillæ prominent at the base; it is large, and flat, and flabby, and sometimes marked with the impress of the teeth; as the disease advances, it becomes dry and cracked; the tonsils are often enlarged and swollen. There may be nausea, but vomiting in the early stage is uncommon, and betokens a severe attack; there is ever present a sense of fulness about the stomach, often most distressing; there is little appetite, perhaps in some measure to be accounted for by the pain which is felt in the epigastrium three or four hours after taking any food; the gums are spongy and inclined to bleed; the palate is at times coated with an aphthous deposit, but there does not appear to be any inclination for this to spread. I said, as a rule, the bowels at first are constipated, particularly in the mild cases, but I have seen many exceptions to this; they are very irregular, often confined, as often the patient suffers from diarrhœa, sometimes dark or loose with mucus, always very offensive. The face and expression were truly characteristic—pale, anæmic, weary, often jaundiced slightly, and with a most despondent manner—betokening the severe nature of the poison and its effect on the nervous centres. The average daily quantity of urine passed was between fifteen and twenty-five ounces; it was either neutral or very slightly acid when passed, but quickly became alkaline afterwards. There was usually a deposit of phosphates and lithates, but no albumen, unless in cases of pre-existing kidney disease, when it may appear and disappear in the urine. The presence of bile was not uncommon. I saw two cases in which it was present in large quantities. The specific gravity was normal. In one case, a gunner in the Royal Artillery, there was suppression of urine for fifty hours, and when he passed water it was loaded with bile; on this man I noticed distinct purpuric spots. During the period of suppression of urine the bowels also became confined, though previously he had had diarrhœa almost dysenteric in its character. This man ultimately made an excellent recovery. The heart-sounds were at times weak, and an anæmic bruit was prolonged into the carotid vessels. Delirium was, as a rule, absent, and in my experience confined to the more severe cases; when it appeared, generally before death took place, it was mostly of a low muttering character, and associated with partial sleep. Insomnia is sometimes exceedingly troublesome, mingled with an irritability of manner most distressing; often, instead of sleeplessness, there was deep slumber, but even this brought with it no sense of rest. Such is a general description of this disease, which varies so much in some of its symptoms as to make it difficult to describe. These symptoms last generally from ten to twenty-five days, during which time the patient gradually grows weaker and weaker. The progress of the disease is slow, one might almost say monotonous, with, in almost every instance, progressive exhaustion.

It is about the end of the second, or commencement of the third week, that, when it does occur, evidences of congestion of the lungs become apparent, slight bronchial murmurs passing with rapid strides into congestion, and this again into pneumonia. Sometimes single, often double, it appears limited in most cases to the base of the lung, though in one case I remember the whole lung became rapidly the seat of pneumonia, which proved speedily fatal. Local complications, such as pneumonia and pleurisy, occur only in severe cases, and are due, no doubt, to blood-poisoning, and these subside as this latter becomes eliminated. In the majority of cases, the disease runs on an unchequered course for days, nay weeks, presenting few, if any, characteristic appearances, save from day to day the unfortunate patient grows weaker, emaciates, and becomes more anæmic. Occasional remissions not unfrequently occur, ill-defined and ill-developed, and these are more marked in the hopefulness of the patient, who is depressed to a degree, than to either fall in temperature or pulse, or any diagnostic sign of any value. The external air and temperature augment or lessen his sufferings. Moist winds, and especially the scirocco wind, aggravate, while dry and cold winds act favourably; indeed, winter weather is hailed in Malta as the great benefactor in such cases. To give a definite description of this disease is almost impossible. Mild cases may be so slight as hardly to compel the patient to remain in bed for more than a few days, during which time he may appear to be suffering from a severe attack of dyspepsia; and this is the one peculiarity of these mild cases, that they are always accompanied by this most intractable form of dyspepsia, oftentimes lasting for months, while the more severe cases pass into the bilious type, with all the distressing sequelæ, prolonging convalescence almost indefinitely. Gastric derangement appears to be an invariable sequela of this disease. Associated with this is a well-marked anæmia, slow and progressive.

Convalescent Stage.—It is in the convalescent stage that the English physician first comes to treat this disease, and here he will recognise what Professor Maclean states to be the most notable part of the fever, namely, its extraordinary duration, extending not unfrequently over seventy days before anything approaching convalescence is established. Can we assign any reason for this? May not the enlarged and congested spleen—which, in my experience, is always present, and which acts as a diverticulum for the blood—may it not have stored up within it blood affording pabulum for the germ of the fever, keeping up, as it were, a storehouse of nutrition, dealing it slowly out, to be consumed day by day at the expense of the unfortunate sufferer, thus prolonging the disease over a lengthened period, and which would have expended itself far sooner had there been no such condition of things? I simply offer the suggestion for what it is worth. In one case

the thermometer registered 104° after sixty-five days, and nearly six weeks afterwards the patient entered the distressing stage of rheumatism and neuralgic pain, through which the majority have to pass before convalescence. This temperature curve is maintained for a long time, with the "unavoidable result of wasting and degeneration of the muscular tissue, and prostration."

As I have before observed, the symptoms vary in each case, sometimes the malarial, sometimes the enteric predominating; but there is one more constant than any other; I allude to the rheumatic stage. This stage is not reached until the more urgent febrile symptoms have subsided. The patient is progressing slowly, we hope making a fairly good recovery, when a sudden rise in temperature takes place, and the distressing pain announces the onset of a rheumatic or neuralgic attack. Mr Wood states the soles of the feet are more frequently attacked. My experience teaches me there is no rule; sometimes these pains are muscular, sometimes articular, as often both. The extremities appear to be most frequently affected, and I think, perhaps, the ankle-joint by preference. Another form the rheumatic sequela may take is orchitis. I have seen three such cases. The tissues swell up, after a few hours of pain, to a considerable size. There was slight effusion into the tunica vaginalis in one case; when the rheumatic affection assumes this form, it is exceedingly troublesome.

Intercostal pain is also a sequela very distressing, and associated with this there may be palpitation, with excited action of the heart, but no bruit. I may here add, that I never saw peri- or endo-carditis in this disease. The rheumatic stage may last for weeks, and Mr Wood tells us in this stage he noticed remissions; that there was a distinct remission in the morning, followed by an exacerbation of fever in the afternoon. This is exactly what I observed when the enteric fever has, so to speak, exhausted itself, when, in fact, the patient is convalescent from this fever, *per se*, then the character of the true malarial fever shows itself, so as to leave us in no doubt of its precise nature; and I maintain that in this stage quinine will prove useful if prescribed in one large and full dose at night.

I met with one case in which there was the most acute cutaneous hyperæsthesia, but it only lasted one day, and passed off as rapidly as it appeared. It is in this stage, too, that the disease, if it does not prove fatal, has a tendency to develop phthisis in weakly and scrofulous subjects, the result, no doubt, of the debilitating effects of this disease on an enfeebled constitution. The effect of such an attack cannot but leave traces behind it; the nervous system suffers, but very much more with officers than men. It is very seldom that the former recover without feeling some effect, such as a partial loss of memory and inability to work, a lassitude and weariness, uncontrollable and almost intolerable. Weak, nervous, and irritable, he performs his daily task with no

comfort, and less pleasure. This does not appear to be the same with the men; in fact, delirium and insomnia is a much more constant symptom in the acute stage among the officers than men.

Treatment.—In the treatment of this disease, the first element for consideration, in order to effect a speedy recovery, is air—fresh air, pure, and, if possible, cool; it is also the best preventive.

The therapeutic treatment is simple. Stimulants are badly borne and mischievous in the early stage of the disease; but better far are saline and diaphoretic febrifuges, which are very useful and grateful to the patient, the regulation of the bowels by the mildest of aperients, and this only when absolutely necessary, and the exhibition of a full dose of opium at night; this must be withheld, or given with caution, in the premonitory stage. In the most earnest manner would I deprecate the use of stimulants in the early stages of this fever. The diet should be extremely light, food only of the simplest and blandest description being admissible. Milk, if it can be procured fresh from the cow, is grateful, mixed with lime-water or soda-water and ice. Good milk is difficult to be had in Malta, and goat's milk is no substitute for cow's milk; it can never be tolerated, and seems to increase sickness, if this be present. Beef-tea and chicken-jelly, flavoured with a little lemon, should be given in very small quantities, and repeated as often as necessary. Lemon-juice in water with ice as a drink is exceedingly refreshing. When vomiting is troublesome, sinapisms over the epigastrium, hot fomentations, and bran poultices are useful. I have also found a hypodermic injection of morphia prove beneficial, when other remedies failed. In the early state, quinine is useless, and invariably disagrees with the patient, while in every case the mineral acids are exceedingly badly borne.

In the later and convalescent stage, quinine has a decided advantage, if given in one large and full dose at night, checking the perspirations, and giving tone to the debilitated system. Fruit is very grateful, and may be prescribed with advantage, especially the juice of the prickly pear. All stimulants, whether by high diet or alcohol, are bad; the stomach will not tolerate them; weak claret or champagne and soda-water are the most useful. Alkalies agree remarkably well in every stage; indeed, lemon-juice appears to be the only acid tolerated, and with water makes an excellent drink. When the bowels are loaded, a dose of calomel with ipecacuanha is very useful, and the action may be assisted by the use of an enema of warm water. When vomiting is severe, ice, to dissolve in the mouth, should be allowed, with small quantities of champagne and soda-water. Blisters answer well in the articular affection, and if pain be very severe they may be dressed with morphia; belladonna and chloroform have both proved valuable adjuncts when employed locally. For diarrhœa when the ordinary vegetable astringents have proved useless

there is no remedy, in my opinion, we possess equal to the sulphate of copper given in pill. Alum, catechu, tannic acid, are of comparatively little value in the treatment of Malta fever. An enema of starch and opium is of great value in stopping irritability; and if these cannot be retained, we may use suppositories of morphia. If hæmorrhage is severe, small and often-repeated doses of turpentine are exceedingly useful; and if this fails, we cannot do better than fall back on the liquor ferri perchloridi in repeated doses. I would earnestly recommend the continued use of the astringent, whatever it may be, for at least one week after the excreta becomes solid, and to urge the greatest caution in administering any aperient; when this is absolutely necessary, only castor-oil is admissible. In the more chronic stage, cod-liver oil, iodide of potassium, and quinine are especial favourites, and have a wonderful controlling power, shortening the duration of the disease, and restoring to health the unfortunate sufferer. Professor Maclean has suggested the use of small doses of ipecacuanha as a blood depurant in the early stages; Mr Wood is apprehensive lest the gastric irritability may prevent its employment. I have no experience; only to add, that lately I have known, on the authority of an excellent physician in London, that he has found drop doses of the wine of ipecacuanha given every hour a most invaluable remedy in the nausea following pregnancy. I mention this, as I think Dr Maclean's suggestion a valuable one, and the fact of nausea being present ought to be no deterrent to its use.

There is one suggestion I would offer, and that is, that the patient should be told of the necessity of eating slowly, and masticating his food properly. The giving or withholding of stimulants will depend on the individual case; if the pulse fail in force and bulk day by day, we are bound to increase them, always using them in as diluted a form as it is possible to do.

Morbid Anatomy.—The pathological appearances usually met with are those of congestion and softening of the enteric mucous membrane, and with ulceration and congestion of Peyer's patches; these latter are certainly more prominent than usual; the mesenteric glands were frequently, indeed almost always, enlarged, swollen, and soft. The cæcum and large intestine, including the rectum, is always deeply congested, and frequently the seat of ulcers. In one case, that of a private in the 18th Royal Irish Regiment, so well marked was the ulceration of Peyer's patches, that it would be impossible to err in establishing the nature of this disease, in every pathological appearance was it so distinctive of enteric fever, though this case presented a typical one of Maltese fever throughout, and at no stage was there diarrhœa which could not be checked by the simplest astringents.

The spleen was severely congested in every case; in fatal cases it was found to be soft and friable, and of a very dark and purplish colour.

The lungs, as surmised, are congested generally at the base; and where pleurisy or pneumonia existed, the pathological characters incident to these diseases were present.

The liver is sometimes enlarged, but, as in the case of soldiers this gland suffers more or less independently of this fever, I can give no very definite account of its condition, as far as this disease is concerned;—it does not appear to affect it much.

The muscular tissues are exceedingly liable to degeneration, and it is some time before they recover; they become very soft and flabby.

The kidneys do not seem to be affected, excepting in the case of pre-existing disease. On considering the nature of this disease, its duration, long convalescence, marked diarrhœa in the majority of cases, and abdominal symptoms characterizing typhoid, with the pathological appearances invariably present, will, I think, fairly establish it to the name I have ventured to describe it under "typho-malarial fever," and which has already been applied to it by no less an authority than Professor Maclean.

That it has long existed is evident to any one who will study the history of this fever. It appears to have been especially prevalent in Her Majesty's Royal Navy half a century ago, for, on turning to the medical history for that period, we find that "Rheumatism was common, and often extremely intractable," and "two-thirds of all the invalids were classed under the head of 'inflammation with fever,'" a vague term, I acknowledge, but one easily understood by any one who has studied the disease.

In conclusion, I would most earnestly express my belief in the *hybrid* character of this fever, partaking as it does both of the enteric and malarial character; and I am satisfied that, by careful watching, no physician will fail to distinguish symptoms which, though often perhaps puzzling, will satisfy him of the nature of this malady, and give him the first stepping-stone to the treatment—preventive or otherwise—he should adopt.

I know there are many shortcomings in this paper, which no one regrets more than the writer; but if I have in the smallest degree assisted in giving a description of this disease, as seen in its own home, it will amply repay any trouble.

ARTICLE II.—*On the Causes of the Hypertrophy of the Vascular System in Granular Degeneration of the Kidney.* By ROBERT SAUNDBY, M.B. Edin., Pathologist to the General Hospital, Birmingham.

IT may be assumed as generally admitted, that in the bodies of persons whose kidneys present the appearances of advanced cirrhosis or granular degeneration, the vascular system shows the

following abnormalities: dilatation and hypertrophy of the heart, dilatation and often chronic endoarteritis of the great vessels, hypertrophy of the muscular walls of the small arteries, with thickening and dilatation of their perivascular sheaths. It is well established that increased vascular tension is one of the earliest phenomena of this disease—a fact which even cursory exploration of the heart and arteries reveals to every observer, and which the sphygmograph demonstrates with scientific precision; moreover, I think it is not going too far to say, that it is getting to be, if it is not already, the current opinion, that undue vascular tension is a prodromal symptom of granular degeneration of the kidneys; lastly, clinical observation has led to the connecting together as antecedent and consequent that form of functional derangement of the liver which in some constitutions shows itself as gout, and in others is characterized by dyspepsia, accompanied by excessive excretion of lithates of soda and potash in the urine, with this condition of increased vascular tension. These being the clinical factors with which we have to deal, let us now see whether it is possible to deduce from them a satisfactory explanation of the foregoing pathological conditions; and, in the first place, let us inquire under what physical and physiological circumstances similar states of the vascular apparatus are apt to occur. Hypertrophy of the heart is a pretty frequent pathological phenomenon, occurring in one or other chamber whenever that chamber meets with an unusual difficulty in discharging itself, either from defect in the valves or from increased tension in the fluid contained in the cavity towards which it is propelling its contents. The facts are sufficiently familiar to make further illustration needless. Hypertrophy of the arterioles is not quite so familiarly known, as it is not observed except when they are examined with the microscope; but this condition is not less, indeed it is more, frequent. Hypertrophy of the arterioles is found in all cases where active hyperæmia has long persisted, as in the brains of chronic maniacs, especially in that chronic parenchymatous inflammation of the brain occurring in general paralysis; in the neighbourhood of all chronic inflammations, such as cirrhosis of the liver, and in all new formations of long standing, such as slowly-growing sarcomata. These appearances must be familiar to every microscopist, so I need not multiply instances. In all these the physical condition is the same—an increased local determination of blood stretching the vascular walls. We have therefore, as a constant antecedent, increased fulness of the vessels—a fulness, be it remembered, not quite unvarying in its amount, but somewhat intermittent, reaching its maximum as the column of blood receives the impulse from the contraction of the ventricle. But in granular kidney there is reason to believe that an increased fulness of the arteries is also a constant antecedent. Let us inquire whether this antecedent deserves to be considered an efficient cause of the general hypertrophy; but before proceeding to

do so, let me say a few words on the cause of this increased fulness. Local increased fulness may be caused in two ways: 1, by an increased quantity of blood going to the part; 2, by a diminution in the loss of plasma by exosmosis into the tissues of the part. The first condition is well recognised, and probably explains the local fulness in the cases instanced above; the second is not so generally recognised, but probably occurs and co-operates with the other in the early stages of many hyperæmiæ. But in general increased fulness of the vascular system, the former cannot obtain; and the latter, diminished exosmosis, must be an important factor. In general fulness, moreover, another factor steps in, that is, increased endosmosis of fluid from the alimentary canal. The physical law regulating the passage of fluids of different densities separated by a membrane is, that a great deal of the less dense fluid will tend to pass into the space occupied by the more dense fluid, while a little of this latter will pass out into the less dense fluid. In the condition of the blood in granular kidney, have we not those physical conditions which, on the one hand, favour increased transudation of water from the alimentary canal, and, on the other, diminished exudation of plasma from the bloodvessels into the tissues?[1] We know that in gout the blood contains large quantities of uric acid, and probably other products of tissue metamorphosis; in lithuria we may reasonably infer a similar condition; furthermore, people who suffer from lithuria are usually of sedentary habits, a large part of the protoplasm of their body is in a comparatively quiescent state, not undergoing those active changes which call for constant supplies of nutrient plasma; furthermore, such a quiescent state of the muscular apparatus cannot have favoured a large capillary development, so that the superficial area of the vascular system is relatively small. I think, therefore, that we are not going further than the facts warrant, if we infer that we have here all those conditions likely to favour increased fulness of that system. Now, let us proceed to the inquiry to which these considerations were necessarily preliminary; that is, whether increased fulness of the vessels can be looked upon as the efficient cause of the hypertrophy of the muscular walls of the heart and arterioles.

Mr Herbert Spencer (Principles of Biology, vol. ii. p. 351, *et seq.*), in considering the development of muscular tissue, points out that contractility is a primitive property of protoplasm occurring amongst the lowest rhizopods, where no differentiation of structure has occurred. He says, it may be supposed that certain of their colloidal molecules have a tendency, under the influence of what we call a stimulus, to undergo an isomeric change, in which they occupy less space—a state of equilibrium from which, on the removal of the disturbing force, they tend to fall, so as to be again

[1] The dilution of the blood by endosmosis will tend to readjust the exosmosis from the vessels into the tissues; indeed, we may expect it to become greater than normal.

ready to undergo the change when the disturbance is renewed. He had before shown that it is probable that a molecule which has had its components re-arranged will tend to impress similar changes on neighbouring molecules, so as to cause isochronism in their respective molecular movements. "A portion of undifferentiated tissue, containing a predominance of the colloid that contracts in changing, will, during each change, tend to form new molecules of its own type from the other colloids diffused through it: the tendency of these entangled colloids to fall into unity with those around them will be aided by every shock of isomeric transformation. Hence repeated contractions will further the growth of the contracting mass, and advance its differentiation and integration. If, too, we remember that muscular colloid is made to contract by mechanical disturbance, and that among mechanical disturbances one which will most readily affect it simultaneously throughout its whole mass is caused by stretching, we shall be considerably helped towards understanding how the contractile tissues are developed." "The formation of a contractile layer in the vascular system becomes comprehensible; each dilatation of a bloodvessel caused by a gush of blood will be followed by a constriction; the heart will pulsate violently, in proportion as it is violently distended; arteries will develop in power, as the stress upon them becomes greater." Such being in all probability the manner in which muscle is developed by the direct equilibration of matter to external forces under primary conditions, it is not less probable that in the fully organized mammal a similar development occurs under like conditions. I have shown that the walls of the vessels are exposed to an increased strain; I have shown that this strain is probably due to an increased fulness, the result of increased endosmotic action from the fluids taken into the alimentary canal; I have pointed out that in the individuals liable to this disease causes exist tending, on the one hand, to abnormal diminution of the whole vascular area, and on the other to inactivity of exosmotic action; I have shown that this osmotic change is the result of the altered physical condition of the circulating fluid; I have pointed out that the strain acts with intermittent force, corresponding to the impulses received from the ventricle. We have seen reasons to believe that intermittent stretchings, or similar mechanical disturbances, are favourable to the development of muscular tissue. Moreover, it must be obvious that all that has been said of the vessels applies equally to the heart—fulness there must cause strain, and strain lead to increased muscular action and muscular hypertrophy. We are led, therefore, to conclude that the hypertrophy of the muscular wall of the heart and arterioles is directly due to the increased fulness of the vascular system.

Finally, let us endeavour to account for the thickening of the perivascular sheaths, and the formation of connective tissue in

other parts of the body. Perivascular sheaths have been described in the brain, the kidney, the liver, and the spleen, and are supposed to perform the functions of lymphatics, because they are found to contain, especially under pathological conditions, products of disintegrating tissue. They are observed to be thickened as a change of senility, and in cases where the bloodvessels are hypertrophied. If they perform the function of lymphatics—and this seems to be generally admitted—it is not difficult to explain their thickening and dilatation under these conditions; for the hyperæmia must lead finally to increased transudation of plasma (the quantity of water obtainable from the alimentary canal being practically unlimited); this excess of nutrition will produce its accustomed effects on the quiescent protoplasm of the part, the connective-tissue cells will proliferate, and new connective tissue will be formed in the perivascular sheaths, as in the neighbouring structures. The activity of the processes will lead to increased disintegration of tissue, and a proportionate increase in the excrementitious matter which it is their function to remove. But in the case of granular kidney, another important condition exists in the state of the blood. Fluid passing from the bloodvessels into the tissues will be liable to contain in solution many of the organic salts circulating in the blood, which will further tend to increase the work the lymphatics are called upon to do. In this way we can easily account for the new connective tissue said to be formed in the wall of the heart, for the endoarteritis so frequently present, and for the degeneration of the kidneys, which is the most obvious pathological condition of all.

ARTICLE III.—*Portuguese Medical Literature.* By JOHN BOYD, M.D., Slamannan.

AFTER a somewhat prolonged service in so active and exciting a profession as the medical, intervals of lassitude are apt at times to supervene—when one ceases for a while to respond to the stimulus of a call for operative procedure; when the occurrence of a case of relapsing in the middle of a crowd of typhoid is not altogether refreshing; and when forceps and turnings fail to render gynæcology the most fascinating of human pursuits. While lately suffering in some degree from lack of normal professional zest, the requisite mental tonic was imparted by the arrival of a packet of yellow-covered pamphlets—numbers of *Gazeta Medica da Bahia* from Brazil, and *Jornal da Sociedade das Sciencias Medicas de Lisboa* —which induced me to resume the study of Portuguese, intermitted for above a quarter of a century, and to endeavour again to familiarize myself with that liquid and flexible language, which, with its elisions, contractions, and nasals, might cause one who is

more intimate with the stately sonorous Spanish, to think he heard the latter spoken by some dreadfully tired and sickish señorita, suffering also from a severe cold in her head.

After an interval of eighteen months, a new series of the *Gazeta Medica da Bahia* is announced in the January number of 1876, in a short business-like introductory note by the principal editor, Dr A. Pacifico Pareira, Surgeon-adjoint to the Hospital da Caridade.

This is followed by a treatise on Hæmaturia Chylosa, by Dr J. Crevaux, of the French Marine, with notes and commentaries, extending into the two following monthly numbers, by Dr Silva Lima. The discovery of worms in connexion with Hæmaturia chylosa by Bilharz, then by Harley, Salisbury, and Cobbold, is mentioned; together with the elaboration of the subject by Wucherer, who first notified the malady to the medical public of Brazil, as extending in South America from 30° N. lat. to 36° S. lat., the margin of La Plata. In Africa, it is discovered in Cape Colony, Natal, Madagascar, Mauritius, and Island of Bourbon; China, India, and Java have furnished cases.

As to etiology, it is most frequent in adults, attacking females in preference to males in the proportion of 16 to 12 (Wucherer), 13 females to 4 males (Silva Lima), 4 to 2 (Almeida Couto). Persons of all races are subject to it, principally individuals of a lymphatic constitution predisposed to obesity. As respects the urine, it presents normal blood constituents and fatty matter, according to the observations of Cl. Bernard and Robin. The presence of the former is attributed to rupture of the capillaries of the kidney and bladder by the passage of crystals of uric acid; and, secondly, to the disorders caused by the presence of helminthes in the parietes of the urinary apparatus. A microscopic examination of the urine of a female patient by Wucherer gave, besides many crystals of ammoniac-magnesian phosphate, epithelial cells, fat globules, mucus, and vibriones, some filiform worms, one extremity of which was thin, the other obtuse, and presenting a small point resembling an orifice. The diameter of these was about that of a white blood-corpuscle, the length sixty to seventy times greater. The body was transparent, and seemed to contain a granular mass, but the structure was not distinguishable.

The treatment adopted for this singular malady of warm climates appears to be the prohibition of the leading hydro-carbonized aliments—sugar, fat, alcohol, and starch; exercise and sea-bathing enjoined, also change of climate. Therapeutically, the administration of ioduret of potass by mouth and vesical injection. Balsam of copaiba is quoted as having been highly successful in some cases.

In the same publication, we find an interesting paper by Dr J. L. d'Almeida Couto, reporting some cases of Pustula Maligna, in which a rapid cure seems to have been effected by the leaves of A. nogueira da India (Aleurites baucorensis), Fam. com. Euphorbiaciæ, a tall beautiful tree, gray bark, rough, with leaves alternate,

cordiform, flowers white, thin, and stellate; fruit, a purgative nut. Immediately after this, there appears an article on the Fungous Excrescence or Hernia of the Testicle—the author of which bears the kindly, homely name of Dr J. L. Paterson—where he gives his view of the pathology of the malady to be a syphilitic deposit of lymph in the areolar tissue of the gland, which, irritating and stretching the tunica albuginea, breaks its way out by ulceration through it and the cutaneous tissue. In the treatment, he refers to the methods of compression, cauterization, and ablation of the projecting mass; also to the late Mr Syme's plan of dissecting the cutaneous texture round the margins, and uniting it by means of sutures. The respectful mention Dr Paterson makes of our revered surgical preceptor gives rise to the idea that he also sat under the pointed, pithy, pregnant utterances of that pre-eminent master.[1] His own mode is to treat all such cases as essentially syphilitic, by submitting the system to the action of mercury, effecting generally a cure in five or six weeks.

The leading article in No. 4 is on Yellow Fever, and the remedies required by it, by the Editor. In it Dr Pacifico Pareira combats vigorously the views advanced by some physicians, native as well as foreign, that yellow fever is endemic in Brazil—not imported and propagated by contagion—a view sustained in a report in the present year from the Vicomte de Meaux, French Minister of Agriculture and Commerce, directed to the President of the Republic, relative to the new sanitary regulations for seaports—affirming, among other matters, that *yellow fever actually dominates in a permanent manner* in the principal ports of Brazil. The writer proceeds to show that, first, in 1685, the malady was imported into Pernambuco, and thence to Bahia, by a vessel from St Thomas. It caused a great devastation, and ceased entirely till 1849, when, after one and a half century's disappearance, it was reintroduced by the American brig Brasil from New Orleans.

The disease, as always happens, was most fatal to seamen, to strangers not yet acclimatized, and to natives who came from the interior.

The least susceptible, those possessing comparative immunity, are—1. Those who have already suffered an attack of the malady; 2. Individuals of Ethiopian race; the Africans being more exempt than the Creoles, and these more than the mixed races; 3. Those natives who have lived in Bahia a long time without interruption, say, twelve years; 4. Strangers under these conditions of continued residence in that city; 5. Children, born and residing there, of six years and upwards.

The neglect into which the sanitary regulations formed by the Imperial Government in 1873 have fallen, favoured the reappear-

[1] "O fallecido Sr. Syme, provavelmente o primeiro cirurgião da Europa ao tempo da sua morte:" the deceased Mr Syme, probably the first surgeon of Europe at the time of his death.

ance of a scourge so pestiferous, and the article concludes with some judicious observations on the indispensable reforms required by the exigencies of the crisis.

Dr Silva Lima reports a curious case of a fibrous tumour embedded in the anterior muscular parietes of the uterus in an African negress of 40, single, but mother of five sons. On examination of the patient, who believed herself pregnant from the beginning of May 1859, and who fell against a hard substance on the 16th September, complaining of pain, which induced her to seek medical aid on the 28th, there was found above the pubis a tumour the size of an orange. The cervix uteri was high, soft, and mobile, appearing continuous with the above-named tumour, while at the right side of the enlarged and flattened abdomen there was felt floating freely a fœtus, seemingly of seven months. The reporter's impression was, that here he had to do with an extra-uterine conception. To make sure, he asked three of his most experienced professional friends to examine the patient separately, and without information from him. One of his colleagues, who met him shortly afterwards, commenced the conversation by asking, "Are we to have an epidemic of extra-uterine pregnancy in Bahia?"—three cases of this nature having previously occurred in the same year. The other two gentlemen were of the same opinion. Angelica was sent to an hospital (Casa da Saude), to be under observation, the only treatment being the expectant. Repeated visits confirmed the junta medica in their conclusion. On the 22d January 1860, Dr de Silva Lima was sent for, the patient suffering symptoms of labour. On his arrival, he found one of his three colleagues, who had preceded him by half an hour, who saluted him with, "Come and see how our diagnosis is confirmed!" On examination, an arm of the fœtus was protruding from the vulva! Podalic version, after some difficulty, accomplished the delivery of the asphyxiated child; the tumour, which had been mistaken for the body of the uterus, appeared like the head of a second fœtus; it was hard, and incorporated with the anterior parietes of the organ. The patient had no hæmorrhage, and made a good recovery. The growth increased slowly, but she is still living, and continuing her ordinary duties in the kitchen.

A frank and full exposition of errors of diagnosis made by highly accomplished and thoughtful practitioners is frequently more instructive than any amount of relations of successful achievements.

The Journal of the Society of Medical Science in Lisbon commenced on February last the fortieth volume, and the forty-first year of the existence of that association, which claims to have done much for the population of the Lusitanian capital during its career, having instituted public courses of instruction by its members, free consulting-rooms in the halls of the society, giving extensive vaccinating facilities, and having advanced professional

zeal and attainments by the discussions held at its reunions, afterwards published in its Journal. In token of the high standing of this medical convocation, it is stated that the king presided at some of its annual festivities. Men of literary eminence like Garrett and Costilho co-operated with it in works of public importance. One of its notable achievements was the gaining a victory over the legal corporation, where legal principles came into collision with medical freedom, in the case of a country practitioner, who was accused of infanticide, from having found it expedient in a case of difficult labour to amputate the upper extremities of a fœtus to secure delivery. Denounced to the local authorities by an envious neighbour, he was condemned, and the decision ratified by the Tribunal of Lisbon. The Sociedade Medica inquired into the case, found the evidence inadequate, and the culpability *nil*, the matter entirely without the limits of legal jurisdiction. The Association of Advocates mixed freely with the physicians in full discussion in the Sessional Hall. The affair was ultimately carried to the highest tribunal in the kingdom, and the doctors won—the Lusitanian Gideon Grey honourably reinstated. These and various points are brought out in the opening discourse of its President, Sr. Manuel Bento da Souza, who, after dilating on the rapid progress of medical science in other countries, draws a mournful picture of the disadvantages entailed on the learned and scientific from the remoteness and general poverty of Portugal, the natives of which seem to regulate themselves in sanitary matters by the standard of Tunis or Morocco. From impurity of air and defect of pure water, he demonstrates the people of Lisbon as feeble, apathetic, enervated, and anæmic. When a fête day attracts them to the public squares, he adds, the females in their finery at the windows, the men dressed up in the streets, and the troops manœuvring in the midst of the crowd, the scene lighted up by the brilliant southern sun, all appears gay and animated; but no cry nor laugh is heard—every movement composed. If the sun be obscured by a passing cloud, all is gloom; women, men, soldiers, and all, look like so many ghosts just escaped from purgatory, proving that it is the sunshine that makes the festival, and that "a city is a cemetery of the living."

In evidence that respiration in Lisbon is not accordant to hygiene, he states there are points in the city where silverplate cannot be kept clean for twenty-four hours at a time, becoming overspread with a film of sulphuret. The wind and the rains are the most efficient scavengers. Many classes do not nourish themselves sufficiently, from scarcity of food; others rob their alimentary system to expend the more otherwise. In many country districts, the custom of the rustics in accumulating manure-heaps under their windows and at their doors, while enriching their crofts, impoverishes their health by the respiring deleterious gases.

The houses, too, built apparently on the plan of preventing all renewal of air, conduce to the same result.

Sr. Gaspar Gomes has an elaborate paper on Marriage and the Civil Code in Portugal, which, in article 1073, establishes as the minimum ages of nubility, 14 years in the male, and 12 in the female, an age which is lower than that in which the pupils of the superior schools are permitted to matriculate. This prematurity of matrimony he holds forcibly as concurring with other conditions to the physical degeneracy of the race. It appears that the canon law not only prohibits marriage in the primary, but also in the second and collateral line of consanguinity, and in the third degree, as likewise those connected by the spiritual relations of godfather, godmother, etc., unless dispensations from the Sacred Chancellary at Rome be got, and paid for. He states that, in the years 1871–73, taxes to the amount, *in cumulo*, of 110,875 milreis 204 reis were paid for such dispensations. This impost is increasing in amount corresponding with the monetary improvement of the nation. "How many schools of primary instruction, at the price paid for this education in our country, could be founded and maintained with the unjust tribute that is annually paid to the pontifical treasury!" (Com o injusto tributo qui annualmente se paga ao fisco pontifical!)

Among the most important contributions to this periodical is one by Sr. A. N. Correia Pinto de Almeida, Naval Surgeon, being an extract from a series of sanitary reports on the island and city of Mozambique, especially important at the present time when African exploration and medical missions to that division of the continent attract so much public attention. This spot is conspicuous as the capital of the Portuguese dominions on the east coast of Africa. It is low and flat, with few trees, and no fountains, the inhabitants depending on cisterns for their water-supply. The want of cleanliness in and around the city, the vicinity of an overcrowded cemetery to the most populous part of it, marshes, and unwholesome rice cultivation, with constant heat and moisture, render it very insalubrious.

The leading diseases are intermittent fevers of various types, inflammations of the mucous and serous tissues, glandular lesions, etc. The course of the greater number of these maladies is ordinarily irregular and rapid, the symptoms varying with extreme celerity—a patient dying to-day who appeared in slight danger yesterday; another, whose life was despaired of lately, becoming rapidly convalescent. These facts are explained by the extreme mutability of the meteorological phenomena, by the quick and extensive alterations of temperature, humidity, and atmospheric pressure. The quotidian is the most frequent type of intermittent in Mozambique, more rarely is the tertian. The quartan and composite forms are never seen. The three periods of the malady are very distinctly marked. The specific treatment here, as elsewhere,

consists in elevated doses of quinine. In some cases the fever begins with biliary symptoms, most highly pronounced; in these, experience enjoins the preliminary employment of calomel, alone, or combined with rhubarb, jalap, or ipecacuan. The endemic fever takes on at times the typhoid character, malignant, or continued. The malignant is mostly accompanied with coma. These are observed throughout the year, predominating, however, during the hot season, or that of the north-east monsoon, being then most apt to be malignant or bilious.

Dysenteries are very frequent, and cause as many victims as the access of fever, if not more. They prevail most during the intervals between the half-yearly monsoons, or continued south winds, from April to September; the north-east, from October to March; the former the dry, the latter the rainy season. This disease supervenes somewhat suddenly, succeeding generally to derangements of the alimentary canal, caused by excess of food and beverages. Hepatic and splenic phlogoses are occasionally observed, and in some instances terminate in suppuration. But the hyperæmia of these organs seldom remains after the affections (dysentery and *febre de accesso*) which produced and complicated them are vanquished. These, and the cachexia paludosa, the result of the former maladies, are most fatal, and worthy of the term endemic, in Mozambique. Pleurisies and pneumonias are rarely noted, and seem wholly confined to natives and Asiatics. Bronchitis is very common from suppression of cutaneous transpiration. Cases of smallpox appear among the natives, and those imported from Quilimano. Scabies is very frequent among the same, at times obstinate and intractable. Arabic elephantiasis of the inferior extremities occurs occasionally.

During the hot season, under its influence and the perspiration, and large ingesta of water, etc., a red papulous eruption appears among Europeans on the surface of the abdomen, the axillæ, and pectoral regions, in the form of small elevations, more or less confluent, erythematous, and pruriginous. An acrid serosity, from minute vesicles developed on the apices of the papules, spreads over the inflamed surface, rendering it still more itchy and uncomfortable. This eruption appears and disappears with great frequency and rapidity; sometimes a draught of water suffices to reproduce it. It is generally considered salutary, and a safeguard against the fever.

Atonic ulcers in the inferior extremities are frequently observed in the hospitals among all classes of the population, and are of slow and difficult cure.

Acute phthisis is very widely diffused and fatal among the negroes. These last also present many cases of a syphilitic tubercular eruption of the skin, termed *boubas*, which yield to a lengthened mercurial treatment and repeated cauterization.

ARTICLE IV.—*Compound Fracture of the Patella.* By JOHN M'DIARMID, M.B., lately Assistant-Physician, Perth District Asylum, Murthly.

COMPOUND fractures of the patella are rare injuries, and happily so, for not only are they troublesome to treat, but if they do not cause death they generally do not give very satisfactory results. The grave character of this form of injury is shown by the fact, that of 69 cases found described in medical literature, home and foreign, by Mr Poland (*vide* Medico-Chirurgical Transactions, vol. liii.), 14 died. Yet this writer is of opinion that the mortality is even greater than it is as shown thus, because "it is the successful cases which for the most part find their way into the public journals." That the majority of the recoveries is not of a very satisfactory kind is proved by 17 only of the 55 recoveries having perfect mobility in the affected joint. Of the remaining 38, 8 had partial and 20 had complete ankylosis. In other 4 cases of ankylosis, the exact state is not described. In 4 cases, secondary amputation was found necessary. In 43 of the 69 cases, suppuration, in the greater number profuse, occurred. The dangers which accompany the lesion are irritative fever, violent inflammation of the joint with ulceration of the covering cartilages, secondary abscesses, and pyæmia, the latter having occurred in 7 or 8 cases. Atrophy of the limb often supervenes, and painful adherent cicatrices are not unfrequent. Even with antiseptic safeguards, such an experienced surgeon as Mr Pick is satisfied with ankylosis after secondary abscesses along the thigh (*vide* Brit. Med. Journal, 16th October 1875). The aims of the surgeon are to prevent inflammation of the membranes and cartilages of the joint; to get osseous union of the fractured bones where possible, and, if osseous union is not obtainable, to get short fibrous approximation of the broken fragments. If firm and short union can be secured with a movable joint and useful limb, good and well; but more frequently one must be content with saving the limb with the knee-joint in a condition of firm straight ankylosis.

How a movable joint was obtained with very little constitutional disturbance, and with scarcely a trace of pus, in a patient of the untoward age of sixty, and labouring under the grave complication of acute mania, I shall endeavour to describe.

J. B., a female, aged sixty, was admitted into the Perth District Asylum, Murthly, on the 12th of May 1875, labouring under an attack of acute mania, and having compound comminuted fracture of the left patella.

For several years she had been a tippler, and about the beginning of 1875 she became very intemperate. Drink is supposed to have been the exciting cause of the insane attack.

The occasion of her receiving the injury was leaping out at a

window two storeys high, and falling among some old iron, striking her knee against the edge of a cartwheel tire.

On examination (twelve hours after the occurrence), a wound two and one-half inches long was found stretching transversely across the front of the knee and opening into the joint. The patella was found divided across, the lower fourth being splintered into fragments, and the ligamentum patellæ completely divided. Several small fragments were found loose in the cavity of the joint, and removed by Dr M'Intosh, while some splinters which were attached were allowed to remain. Two small scalp wounds (self-inflicted by an iron instrument) were discovered, and the legs exhibited numerous ecchymosed patches.

Generally, the patient was of good constitution, being of powerful muscular build, and with healthy internal organs. The pulse was, on admission, 100 per minute, full and bounding. The tongue was dry and furred, the bowels constipated, and she had considerable thirst. She was excited and delusional, but lay quite still in bed.

The edges of the wound were washed with cold water to remove the encrusted blood, and a piece of lint dipped in carbolic oil (1-20) was laid over the knee. The limb was laid on a padded Gooch splint, extending from near the fold of the nates to beneath the belly of the calf, and secured by slip-knot bandages.

She had a strong dose of castor-oil before admission. Strictly farinaceous diet was ordered.

At 9.40 P.M., as she was rather restless, and complained of severe pain in the injured knee, $\frac{5}{12}$ gr. of the acetate of morphia was injected subcutaneously. Shortly afterwards she fell asleep, and continued in slumber for more than eight hours.

She remained drowsy all the following day and slept much, feeling no pain in the affected knee, which was much discoloured and full of fluid. Cold lotions were applied, the wound itself being protected by lint saturated with carbolic oil. The opiate was repeated at night, and she slept until next morning.

On the 14th, she was drowsy, and slept for considerable periods, the knee being only slightly uneasy. On the 15th, the knee was swollen, hot, and tender, and towards evening became painful. The evening opiate was increased to $\frac{1}{2}$ gr. Next day the inflammation had greatly subsided, there being free blood-stained sero-synovial discharge from the wound, and she suffered very little from pain.

Until the 19th, she had morph. acet. $\frac{1}{2}$ gr. injected every evening, with the invariable result of tranquil nights and days free from pain. She continued to do well, suffering very little, sleeping pretty soundly, and taking food well, until the 24th, when she complained of severe headache, and was ordered a dose of pil. col. c. hyoscy. for constipation.

On the 26th she was much out of sorts, having a hot skin, a pulse of 112, high and bounding (the usual rate being 72 to 90 per minute). The features seemed pinched, and she complained of

pain in the knee and heel. The splint was found to have slipped down to the heel, and on being removed was discovered to have caused some abrasion. On the splint being padded afresh and re-adjusted she felt much easier, but had an unmistakable rigor in the evening. Next morning the cause of those unpleasant symptoms was found in an abscess in the right forefinger in connexion with necrosis of the ungual phalanx, the result of an old whitlow. Evacuation of the pus and removal of the bone gave much relief, and next day all the disagreeable phenomena had disappeared.

The subsequent history of the case is briefly as follows:—

1*st June.*—Tongue clean, appetite good, sleep undisturbed, pulse 88, wound looking healthy. There was very little pain when the limb was at rest, but there was rather profuse sero-synovial discharge with a trace of pus. There was considerable thickening of the fibrous tissues in the neighbourhood of the wound, and a crop of soft flabby granulations had formed along its edges. There was much mental depression, the maniacal having passed into the melancholic condition.

10*th June.*—A loose fragment of patella which was hindering union of the wound was removed, and found to consist of a splinter from the anterior surface of the bone near the outer margin, measuring about $\frac{3}{4}$ inch long by $\frac{1}{2}$ inch broad. The limb was now firmly bandaged from the toes to the middle of the thigh, the slip-knots being removed, and the granulations were touched with sulphate of copper.

20*th June.*—The fragments of patella were brought together by figure-of-8 bandages grasping the edges of the bone firmly, and the apposition was made close by cross straps longitudinally.

16*th July.*—The Gooch splint and bandages were removed to-day. The wound was found completely healed, and the fragments of patella in close apposition. The joint was movable. Wood's special splint for fracture of the patella was applied, and secured by a roller bandage.

19*th July.*—The soft fibrous union had yielded nearly half an inch, by muscular movements. The fragments were again approximated by a figure-of-8 bandage.

29*th July.*—The figure-of-8 bandage did not suffice to keep the portions of patella closely together, as it slipped over the edges of the bone, pressing them down, and tending to cause adhesions between the joint and the ligamentum patellæ. The previous plan of two longitudinal straps pulling on two transverse circlets of bandage was again resorted to with success in approximating the fragments accurately. (I may here remark that Wood's splint turned out rather a cumbersome and not a very satisfactory apparatus. A Gooch splint is lighter, much cheaper, and equally comfortable.)

22*d August.*—The splint was removed. The limb and joint were still swollen and rather stiff. Passive movements were begun, and lin. saponis was applied.

30th August.—There was considerable power of flexion in the joint. The patient was out of bed, and could stand firmly and without pain on the damaged limb.

25th September.—The patient could walk for 200 yards without fatiguing the injured limb. There was no pain in the joint on movement, and the range of motion was daily getting longer by the breaking down of slight adhesions.

9th October.—The patient was discharged recovered mentally. She could walk up and down stairs without difficulty, walked about half a mile without uneasiness, and the limb could be bent at the knee almost to a right angle. At the inner angle of the patella the fractured pieces had become closely united ; but at the outer angle there remained a gap of rather more than one quarter of an inch, which was filled with fibrous tissue. There was every reason to believe that the limb would be almost, if not quite, as useful as ever it had been.

Several phenomena in this case may deserve a little attention. For one thing, the constitutional disturbance was very slight. Indeed, the formation of the abscess in the right forefinger caused severer febrile, and more unpleasant symptoms than the injury to the patella. It may be mentioned here that the pulse, which was 100 per minute on admission, sank next day to 82, and never rose higher than 96 for any length of time, except when the abscess mentioned was forming, when it reached 112, and remained so for three days.

Then another point of interest was the small degree of pain, or even of discomfort, which she felt during the first two weeks, when inflammatory symptoms might be expected. Several factors must be taken into account in estimating the cause of this immunity from suffering. The wound was severe enough, for the patella was splintered, the fibrous tissues in connexion with it were torn, and pieces afterwards sloughed away, and the synovial lining of the joint was injured. It is true that the wound was rather of the nature of an incised one, thus avoiding the dangers incident to much laceration or contusion. Still, although the tissues over the patella were somewhat evenly divided, yet the edges of the wound became much ecchymosed, and the bone was comminuted, as might be expected, from the comparative bluntness of the edge of the cart tire. Of seven cases of "compound fractures of the patella, associated with incised wounds" opening into the joint, Mr Poland found that two died after severe suppuration, in two others there were both inflammation and suppuration, and three only recovered with useful movable joints. But it must be remembered, that of these cases four were injuries caused by blows from axes, two by sabres, and one by a fall on a chamber-utensil—all more or less keen-edged. Hence there was less disadvantage in the causation than in J. B.'s case, and consequently less tearing and bruising of the tissues. We may, then, safely say that the mild symptoms of the case which I have described were not due to the character of the injury.

It is true that the constitution of the patient was originally good, but then she was much exhausted by want of sleep and insufficient nutrition (from insane anorexia). There was also considerable disorder of the bodily functions (independently of the nervous condition), as shown by a foul tongue and constipated bowels.

One factor was the local treatment. How much of the satisfactory result was due to the carbolic oil and exclusion of air and dust? An examination was made with probe and fingers well smeared with carbolic oil; but Professor Lister would reckon these precautions very insufficient without an atmosphere of carbolic-acid spray. For twelve hours before admission the woman was exposed to any evil agencies (germs) which might be lurking in a filthy, sour-smelling dish-clout, which had the odour of decomposing gluten, and which was the dressing found applied to the knee. Then Mr Pick had suppuration of the joint and abscesses along the thigh in his case, in spite of antiseptic applications; and Mr Poland's statistics give three of the cases with incised wounds where neither inflammation nor suppuration occurred with ordinary dressing. We may conclude, then, that the carbolic-oil dressing (although presumably an important agent) does not explain the freedom from constitutional disturbances in this case.

No doubt the cold applications aided in preventing congestion of the tissues adjacent to the wound, and thus prevented in part local disturbances. The prevention of much movement of the limb by the splint was also an element which must be taken into account. Still, it appears probable that the means directed to the prevention of local irritation had not so much influence for good on the progress of the case as the general remedies.

If we consider in order of time the general agents which have to be taken into account, then the loss of blood must first be estimated in regard to its antiphlogistic influence. The hæmorrhage was stated by those who had charge of the patient to have been considerable; but although there must have been smart bleeding, the vascularity of the parts injured could not have been so much as to lead to a very great loss of blood. Yet the bleeding must have materially aided in preventing the acute congestion which might be expected in the tissues adjacent to such an injury.

Next in point of time comes the free evacuation of the bowels, which she had in consequence of the dose of castor-oil she had on the morning of the day of admission. Such an apparently simple means as a laxative of counteracting the inflammatory reaction which follows injuries to joints must not be overlooked. Indeed, it is of great importance to clear out the primæ viæ as a prophylactic means (in view of inflammation), as thereby we have a mild derivative and depressant action upon the circulation. Mr Solly (ex-Pres. Med. Chir. Soc. Lond.) says, that in all injuries involving joints a laxative should at once be given to clear out the intestines, and attaches considerable importance to such a pro-

cedure as a means of treatment. (*Vide* Med. Times and Gazette, 1869, vol. i. p. 312.)

But of all the remedies used the hypodermic injection of morphia was perhaps the most potent in subduing the tendencies to and first inroads of inflammatory action, and in assisting the efforts of nature in keeping the injured and neighbouring parts in a healthy state. The most marked effect of the opiate was the causing of sound and prolonged sleep, which was of supreme importance to the nervous system of the patient, exhausted as it was with irregularity of living, want of sleep, and the restlessness of excitement. Then, by its analgesic properties, morphia so soothed the local irritation, that the patient was only very slightly uneasy from pain (for the most part), being able to lie quietly, instead of being restless from acute suffering. The general depressing effects of pain were avoided by the action of the drug, and the sufferer was kept during the first week in a condition of calmness of mind and repose of body, by day and night, which must have proved salutary. Ludwig and Lovén have discovered that irritation of a sensory nerve leads to the suspension of the action of the vasomotor centre "in the part supplied by the nerve, and in those which immediately adjoin it, so that their vessels become dilated, while, at the same time, contraction of the vessels in other parts of the body is produced. The blood-pressure is thus increased generally, and produces in the locally dilated vessels a very rapid stream of blood."—(Brunton.) But morphia prevents this reflex action from an irritated sensory nerve, and is antagonistic to pain by acting "not only, in all probability, upon the encephalic centres, but by its effects upon each nerve-fibril along which the pain-producing impression travels, and upon every nerve-cell through which the impression passes." (Brit. Med. Jour., 1st Jan. 1873.) We may have thus an explanation of the fact discovered by Brunton, that opium limits to a marked extent the vascular congestion in a part where inflammation is being artificially produced. The manner in which the opiate subdued the inflammatory tendencies of the injured structures, while relieving the pain, is obvious, if we view the action of the drug in connexion with the physiological facts just stated.

It may also be mentioned that Professor Gross of Philadelphia, U.S.A., states that venesection, followed by subcutaneous injections of morphia, is the best method of preventing muscular spasms in injuries to joints. The question of how far the hypodermic is superior to the stomachic administration of morphia is not suited for discussion here, but evidence is not wanting to show that the former interferes with the digestive processes to a much less extent than the latter mode.

Diet is also an element of importance in the treatment both of injuries to joints and insanity. In the former class of diseases, a stimulating diet would be hurtful, by exciting too much activity;

while to the insane condition a lowering diet would be equally injurious, by depressing an enfeebled nervous system. Both dangers were avoided by a light, easily-digested, but yet nutritious dietary of milk, eggs, and farinaceous materials.

Another point which deserves mention is, that some surgeons have employed and recommend pressure on the tissues near the joint, or on the femoral artery, to prevent congestion, effusion, and swelling. Ice has been employed for a similar purpose by others. (*Vide* Med. Times and Gazette, 1869, vol. i. p. 312.) A more rational method surely is to act on the circulation through its regulating nervous system, as we thus avoid the pain and inconvenience of such heroic local measures as compression. Besides, the less we interfere directly with the joint the better. Let absolute rest be secured, and the wound kept clean and free from dust or other irritating agents, and gentle general remedies are sufficient, with the *vis medicatrix naturæ.*

In one slight particular much mischief is in all probability frequently done, viz., by drawing the edges of the wound closely together by stitches. As Professor Lister has found in his operations opening into joints, a large incision is always a safeguard, by allowing free exit to synovia and pus. In the case described, the sero-synovial discharge was so great that much harm would have been done had it been pent up by stitches, as the tension thus caused would probably have led to such irritation as would have destroyed ligaments and cartilages. By confining the discharge, neighbouring tissues become infiltrated with it, to the danger of their vitality, ligaments are softened and stretched, and the fractured fragments are separated, to the great risk of their imperfect union. For similar reasons, forcible approximation of the fragments should not be attempted for the first few days. Taking all circumstances into consideration, there is, I believe, sufficient reason for doubting the truth of the dictum of surgical authorities that immediate amputation is the only proper way of treating compound fractures of the patella. (*Vide* Erichsen's Works, vol. i. p. 297.) Such a summary means of dealing with the injury seems rather barbarous in the present condition of medical science. At least in country practice, and in well-ventilated, healthy institutions, such as modern asylums, where "hospitalism" is neither a danger nor a bugbear, it would be monstrous malpraxis not to give the sufferer the chance of escaping with a serviceable, even although a stiff limb. And perhaps the dangers attending the lesion may prove, with antiseptics and judicious constitutional treatment, to be less than those concurrent with and subsequent to amputations. Professor Lister's success with operations involving joints, and Volkmann's (*vide* Edin. Med. Jour., March 1875) with two cases of compound fracture of the patella, seem to be opening the way for a rational, conservative, and successful mode of treating the form of injury discussed.

ARTICLE V.—*Notes on a Case of Sunstroke.* By J. STITT THOMSON, L.R.C.P.E., etc., Dalkeith.

ON the 15th August 1876, at 2 P.M., I was asked to go at once to see a man who was reported to have "taken a fit."

On my arrival, I found G. D., æt. 36, by occupation a farm-labourer, lying in bed in a semi-unconscious state, capable of being roused sufficiently to answer questions and recognise those about him; but, on being left to himself, immediately relapsing into his former drowsy condition. He complained of severe headache, intense thirst, and nausea. His face was flushed; pulse rigid and compressible; breathing laboured; tongue foul; temp. 102°; the vessels of the conjunctivæ much congested; pupils contracted.

On making inquiries from his wife, I was told that for some days he had complained of being ill, but had always been able to follow his employment. The previous day (*i.e.*, Monday, 14th August, one of the hottest of our late hot days) he had been much exposed to the sun when working, and had come home in the evening complaining of headache, and a feeling of exhaustion.

He went to bed and slept well till about 5 A.M. of the next morning, when he became restless and irritable. He now vomited frequently a quantity of dark matter. Diarrhœa set in, from which he suffered much. He seemed now to be very weak, and gradually became drowsy. About twelve o'clock, noon, he had what his wife called "a fit," and, from her description, it much resembled an ordinary convulsive seizure. I was now sent for, and found him in the condition above described.

I ordered cold applications to the head, sinapisms to the extremities, a laxative powder containing calomel, and left him, intending to see him next morning.

At 2 A.M. of the following morning (Wednesday) I was again sent for, he having become much worse. On my arrival, at 3 A.M., I found the patient dead. He died suddenly, a few minutes before my entrance. On examining the body as it lay, I found the face much congested, otherwise the appearances were natural.

A post-mortem examination was objected to, and not insisted upon.

In the above, we had evidently to deal with a true case of "sunstroke;" and from the rarity of such cases in this country, and the absence of authentic descriptions of them, this one presents peculiar interest.

Here we had a strong man struck down suddenly in the prime of life. His not being well for some few days previous to the attack acted as a predisposing cause; the rays of the sun as the direct cause.

The symptoms presented closely resemble those described by

some of our army surgeons who had frequent opportunities of studying this disease.

The excessive thirst and sense of faintness, the laboured breathing, coma, and lividity of the face and contracted pupils, described by Dr Russel and others, were all present; the sudden fatal termination being a well-marked symptom.

As regards treatment in such cases, the "cold douche" applied over the head and along the spine, sinapisms to the extremities, and the immediate employment of stimulants, would probably afford the best chance of a successful termination.

ARTICLE VI.—*Case of Transverse Fracture of the Patella, Treated by a New Method.* By W. T. GRANT, M.B., Royal Infirmary, Edinburgh.

TWO years ago, when reading over the subject of fractures in the systems by various authors, I was much struck by the unanimity of opinion regarding the character and amount of union taking place in transverse fractures of the patella, the general opinion apparently being, that true osseous union rarely or almost never takes place, and that if the permanent separation of the fragments does not amount to more than quarter or half an inch the case may be considered to be a fairly good one. Some authorities, again, as Mr Adams, seem to consider that even direct ligamentous union is rare, and that more commonly we have it occurring by connexion of the fragments through the fibrous capsule of the joint becoming thickened, this also being incorporated with the bursa in front. Mr Spence, in his systematic work, doubts very much the wisdom of attempting to obtain direct union, owing to the amount of force required to get the fragments together, and also the early stage at which it must be applied; and he specially advises less active measures in cases where there is much bruising.

Considering that this rarity of bony union is not due to any peculiarity or absence of nutrition in the part, but to mere want of close apposition of the fragments, I thought that if some steadily applied but moderate force could be brought to bear on the upper fragment the desired end might be obtained.

After a few experiments I found the following method apparently very applicable and simple. Unfortunately, however, not till this summer had I a fair opportunity of testing its results. The case below will perhaps best show its principle and method of application, which, with very slight modifications, is what I had previously used on the dead subject:—

J R., æt. 56, labourer, was admitted to the surgical wards, Royal Infirmary, 7th August 1876, suffering from transverse fracture of the patella, the result of indirect violence, there being also bruising of

the knee on which he had fallen at the time of the accident. After an interval of two days to let the swelling subside a little, under Mr Bell's sanction the limb was put up in the following manner:—

The leg was placed on an inclined splint, extending from the heel to near the gluteal fold; the lower fragment was then firmly fixed in position and steadied by a strap of plaster passing right round the leg; a semilunar splint of Hyde's poroplastic material was now carefully modelled to the thigh, just above the margin of the upper fragment, and this held in position by two stout pieces of strapping, the whole being surrounded by a few turns of a convergent spica bandage.

After allowing the splint to "set," I now took two steel hooks (about the size of those used by Malgaigne) and fixed them firmly into the splint, one on each side of the patella, the hooks being connected with a steel chain about 3 feet long; this was attached to the ordinary pulley-extension apparatus with a weight of nearly 4 lbs. On allowing this to act, the upper fragment was at once felt to be drawn closely down, while the lower remained in position, and after twenty-four hours the approximation had so gone on that only with difficulty could the line of separation be felt; now it is just recognisable by a line of thickening running across the bone. The patient suffered no discomfort, except at first a sense of dragging, which soon passed off.

This method seems to me to present the advantage of being comparatively painless, while exact apposition of the fragments may be obtained by the use of a moderately applied force, which is not so great as to inconvenience the patient by pressure on the joint or by limiting movements conducive to comfort in bed.

Since using the above, I am glad to see in the August number of the Dublin Journal that Dr Hornbrook, in America, has been using the same principle of continuous extension by means of straight strips of plaster passing above the patella, with which he has got excellent results, bony union being obtained in all his three cases.

ARTICLE VII.—*Case of Spontaneous Circular Rupture of the Aorta.* By T. W. M'DOWALL, M.D., Northumberland County Asylum.

THE accompanying rough sketch is intended to represent the condition of parts found on examining the body of a woman whose history is as follows:—

E. C., æt. 42, was first admitted to this Asylum in 1859, labouring under an attack of mania. Her bodily condition was very feeble; she had a severe suicidal wound of the throat; her convalescence was prolonged. Numerous attacks of depression followed; by degrees she became considerably demented, and was at last

discharged in 1869 in good bodily health. In September 1872 she was re-admitted, and was then described as a thin, slenderly-made woman, looking more than her age, 53. During her absence from the Asylum she had lived chiefly in the workhouse, where she had at last given so much trouble that she could no longer be retained there. Her general health was feeble, and there was a slight systolic bruit at apex. Her mental state was that of dementia with excitement. During her second residence here her mental symptoms varied considerably; several short attacks of acute mania occurred, lengthened periods of depression were observed, but her usual condition was that of a garrulous dement. For a short time after her second admission she improved in bodily health, but she appeared to be a victim of premature age, and for two years before her death was in a very feeble state.

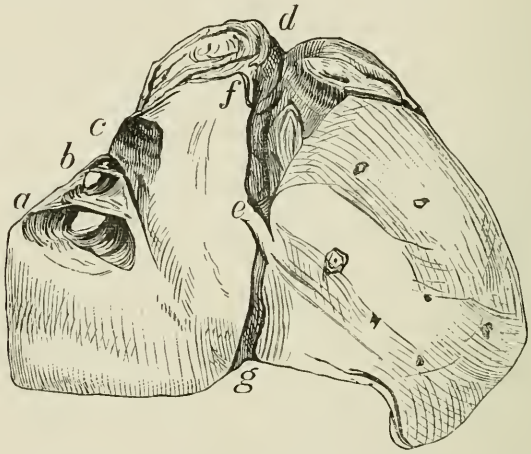
Shortly after being put to bed on the evening of the 14th March last she was found in a dying state, and survived only a few minutes after being seen by a medical officer.

For the most part, it is necessary to give only the chief appearances found at the post-mortem examination, made thirty-nine hours after death. *Head.*—About two ounces of serum escaped during the removal of the brain. There was marked atrophy of the convolutions in the frontal and parietal regions, with corresponding sub-arachnoid effusion, but more especially along the ascending branch of the fissure of Sylvius and the sulcus centralis of each hemisphere. The convolutions forming the inferior surface of the right occipital lobe were also much atrophied, and in its centre there was an oval space an inch long, in which the brain-substance had been completely absorbed; the cavity thus formed contained clear serum, and was bounded inferiorly by the membranes only. The vessels at the base and their more important branches were thickly studded by atheromatous patches. The membranes stripped with facility. On section, the gray matter was found pale and atrophied; the white matter of average firmness. The small vessels throughout the brain were hypertrophied. There was a small quantity of fluid in the lateral ventricles. On the superior surface of the right corpus striatum there was a small patch of yellow softening, and another the size of a bean immediately below the gray matter in the middle of the right second frontal convolution. Into the latter hæmorrhage had occurred, and a small artery close to it was completely plugged by a firm clot. In the right occipital lobe there were numerous small patches of yellow softening.

Chest.—Blood was found filling the left pleura and concealing the lung. Upon removing 36 oz. (by weight) of clots, the lung was found compressed backwards, and but slightly crepitant: weighed 15½ oz. The right lung had a considerable quantity of coagulated blood in its root; otherwise normal: weighed 15 oz. *Heart.*—All the cavities were empty; aortic valves slightly incompetent; there was slight thickening of margin of mitral valves; the

posterior one was full of long slits, reducing the valve to the appearance of a few threads. The wall of the left ventricle was much hypertrophied, but there was no dilatation of the cavity.

The arch of the aorta having been removed for examination, it was found that, immediately beyond the origin of the large vessels, there was a dark bloody swelling, the size of a small apple. This consisted of recent clots firmly bound down between the aorta and surrounding connective tissue. From the posterior part of this tumour blood had escaped in large quantity in all directions, but chiefly along the pulmonary vessels and the posterior surface of the descending aorta, filling the posterior mediastinum.



About half natural size. The aorta has been slit up, and its internal surface is represented in the sketch. *a*, *b*, *c*, the openings of the great vessels of the arch; *d*, the mass of clots; *e*, the small portion of the vessel which has escaped laceration; *e f*, *e g*, the rupture. The openings of the intercostal arteries are indicated, but the atheromatous plates must be imagined.

This sketch includes the transverse and descending portions of the arch, and a small part of the thoracic aorta. But a small portion only of the tumour composed of clots can be seen; it forms the floor of the fissure in the vessel. Owing to the preparation having been preserved in strong spirit, and to the unequal contraction of the various tissues, the line of rupture has become somewhat distorted. The portion *e g* correctly represents the condition of parts, and that between *e f* was of the same breadth when first examined. Except at *e*, the laceration extends round the whole vessel, and through all the coats except the external. To complete the description of the vessel it is only necessary to add, that the internal surface was studded thickly with atheromatous plates, and that the middle and inner coats could be torn with unusual ease.

The case has appeared to me worthy of record on account of its rarity. In text-books, chiefly surgical, spontaneous rupture of arteries is referred to, but the notices are meagre. So far as I

can ascertain, Rokitansky is the only writer who notices the lesion at any length. His remarks (Pathological Anatomy, vol. iv. p. 319 *et seq.*) are so complete that they appear to exhaust the subject. The case now recorded belongs to his second series, which includes those where the lacerations are due to "a profoundly diseased condition of the texture of the whole wall—somewhat in the manner of the so-called dissecting aneurism, that is to say, with detachment of the cellular sheath; but this is here always effected by the violent action of the blood extravasated from the rent, and therefore constitutes a secondary occurrence." His first series includes dissecting aneurisms.

The case described is an exception to the rule stated by Rokitansky, that in his second series the lacerations are generally longitudinal, and the position of the rent is not that most commonly observed, the ascending aorta.

Article VIII.—*Litholysis.* By Dr George C. Duncan.

In introducing this subject to the notice of the profession, I will first proceed to give the history of the origin of the idea, so that if it is deserving of any merit, the credit given may be to whom it is due. In the year 1867, it occurred to the mind of my brother, the late Dr John Duncan, while a student at M'Gill University, Montreal, Canada, that a great many operations of lithotomy and lithotrity might be avoided by litholysis, and acting upon this, he commenced to make an instrument for that purpose, which he partly finished; but, owing to the incompetency of the workmen in the indiarubber manufactories in that place, he was forced to abandon the project, intending, at some future time, to try and complete it in Europe. Fulfilling the requirements of his university, he entered into an active practice, which, together with rapidly failing health, prevented him doing anything more in the matter up to the time of his decease, which occurred when I was in the beginning of my own professional studies, and with which perished his ideas concerning the construction of the unfinished instrument. As I advanced in my studies I felt more and more convinced of the feasibility of the undertaking. Some few years ago I ventured to ask the opinions of several surgeons of considerable repute, and by some I was received with an ominous shake of the head or a shrug of the shoulders, and they individually raised some separate objection, which, in their opinion, would render the plan hopeless. After considering these objections, I felt satisfied that I could overcome them all. At a more recent date, I have had an opportunity of conversing with these gentlemen upon the subject, and they have all kindly expressed their satisfaction as to the means I proposed to over-

come these difficulties. It is not my intention, at present, to enter into any minute details, but at a future date I hope to be able to give a detailed account concerning the *modus operandi*, accompanied by diagrams showing the construction of the instrument. At present, let it suffice to say, that the method proposed is to encase the calculus, while in the bladder, in a thin pouch of indiarubber, highly vulcanized, introduced by a suitable contrivance; and with the interior of this pouch containing the stone, free communication is had through the urethra by means of two small rubber-tubes, through one of which the operator can at will inject any stated quantity or kind of solvent he may require for the solution of any particular formation he may attempt to dissolve, the remaining tube being for the exit of the disintegrated stone in solution.

In my next communication, I will attempt to give a complete description both of the mechanical and chemical difficulties as they present themselves, together with the means by which I intend to overcome them.

ARTICLE IX.—*Sclerosis in Scattered Patches.* By Prof. CHARCOT, La Salpêtrière, Paris. Translated by THOMAS OLIVER, M.B., Preston, with M. Charcot's permission.

(*Continued from page* 125.)

PART III.—*Apoplectiform Attacks in Sclerosis in Patches.—Periods and Forms.—Physiologico-Pathology.—Ætiology.—Treatment.*

Summary.—Apoplectiform Attacks—Their frequency in Sclerosis in Scattered Patches—General Considerations of the Apoplectiform Attacks in General Paralysis and in cases of old-standing Focalized Cerebral Lesions (Hæmorrhage and Softening of the Brain)—Pathogenesis of the Apoplectiform Attacks; Theory of Congestion insufficient—Symptoms: State of the Pulse; Elevation of the Temperature of Internal Parts—Cases of Apoplectiform Attacks occurring in Patients affected with long-standing Hemiplegia—Importance of the Temperature from a Diagnostic point of view.

Periods in Sclerosis in Patches.—Three periods; first, second, and third—Symptoms of Bulbar Paralysis—Forms and Duration of Sclerosis in Patches.

Physiologico-Pathology.—Relation between the Symptoms and the Lesions.

Ætiology.—Influence of Sex and Age—Heredity—Previous Nervous Affections—Occasional Causes: Prolonged Action of Moist Cold: Traumatic—Moral Causes.

Prognosis.—Treatment.

I PURPOSE to-day to call your attention, in the first place, to certain cerebral accidents which may arise and complicate the symptomatology of cerebro-spinal sclerosis in patches. The accidents in question are *apoplectiform attacks*, which sometimes occur

repeatedly, and which occasionally terminate fatally. These attacks have not as yet occurred in Miss V., whose clinical history is otherwise so complete in many other respects; but nothing justifies me in affirming that they will not happen some day. Indeed, it is not a rare complication: I find it pointed out in about a fifth of the cases that I have collected, and I myself have, personally, observed it at least in three.

The aggregate of symptoms which characterize the attacks in question do not belong properly to multilocular sclerosis. They present themselves in a number of diseases which affect at once several points of the cerebro-spinal axis—in particular, progressive general paralysis. It is even in this last disease that *congestive attacks* (this name usually serves to designate them, at least in France) have been particularly studied in proportion to their frequency. In these attacks we meet them under the rather various forms which they may assume. Accordingly, the description of these attacks in progressive general paralysis has occasioned numerous divisions and subdivisions. But, in short, all the varieties of form which clinical observation has brought into notice (and here I only wish to consider attacks of some intensity) may be reduced, if I am not mistaken, to two fundamental types, that is—1*st*, *Apoplectiform attacks* (*pseudo-apoplexy* of English physicians); 2*d*, *Convulsive* or *epileptiform attacks*. The characters of the two types may also be intermixed and confounded in the same attack. Only the first type has been met with, until now, in sclerosis in patches; but there is no doubt that observations relative to this affection, by being repeated, will one day enable us to complete the picture.

Among the other organic diseases of the nervous centres in which we frequently observe epileptiform or apoplectiform attacks, I shall confine myself to particularize certain old *focalized* cerebral lesions, accompanied by permanent hemiplegia. Such are *cerebral hæmorrhage* and *softening of the brain*, when they have occupied regions of the encephalon, the lesion of which has for its immediate consequence an almost certain determination of cerebro-spinal affections, known under the name of *descending fasciculated sclerosis*.

Between these partial lesions of the brain and progressive general paralysis it seems, at first sight, as if there existed no point of contact. Here is, however, a character which brings them into relationship; the observations of M. Magnan and those of M. Westphal have shown that, in general paralysis, there is very often superadded to the lesions of periencephalitis a sclerotic degeneration, sometimes diffused, at other times fasciculated, which occupies at once the cerebral peduncles, the protuberance, the bulb, and certain regions of the spinal cord. Now, these cerebro-spinal lesions, as much from their mode of distribution as by the very nature of the morbid process, deserve to be assimilated to the descending fasciculated sclerosis consequent upon hæmorrhage or softening of the brain. We know, on the other hand, that, in multi-

locular sclerosis, the sclerous patches occupy not only the spinal cord and the brain properly so called, but, moreover, very generally various parts of the isthmus of the brain, and, in particular, the bulb. You see from this that the existence of irritative lesions scattered slightly everywhere in the cerebro-spinal axis, but always present in the isthmus, is a character common to all the affections, so dissimilar in appearance, to which are superadded the attacks called *congestive*. I shall draw your attention specially to the constant existence of bulbar lesion, which, in all likelihood, is a predominant element in the production of these attacks.

Be that as it may, the case before us is one of permanent degeneration of a slow and progressive development. It consequently cannot explain, without the concurrence of other lesions, the development of accidents which are produced, as a rule, almost suddenly, and which may disappear very quickly without leaving any trace. I am aware that many physicians, even at the present day, represent as supervening here a partial sanguineous congestion, a fluxion which, according to the necessities of the cause, would affect such and such a part of the brain; I cannot, for my own part, subscribe to this hypothesis. To justify my scepticism in this regard, I would at first appeal to the memory of those among you who are attached to the service of the lunatic asylum. How many times have they not been disappointed in not meeting at the autopsy the congestive lesion on which they had reckoned? But I will appeal particularly to the observations which I have been able to collect in the usual sphere of my labours. Many a time I have seen patients die in consequence of attacks, either epileptiform or apoplectiform, that had been affected for a long time with hemiplegia from the fact of softening of the brain or intracranial hæmorrhage. Well, in such a case, whatever attention I paid to the autopsy, it has always been impossible for me to discover, either in the nervous centres or in the viscera, a recent congestive or œdematous lesion, or any other capable of explaining the grave symptoms which had marked the fatal termination: I have never met with anything but old lesions—ochreous foci, yellow patches or centres of cellular infiltration—on which depended the hemiplegia and the secondary degenerations of the mesencephalon and of the cord, which are the consequences of these partial lesions of the hemispheres. I believe, in short, that in the actual state of science the absence of proper lesions is, anatomically speaking, a character common to those attacks, whatever may otherwise be the form which they affect and the disease with which they are connected.

As regards the symptomatology of the apoplectiform and epileptiform attacks (in order not to enter into the details of a regular description) I shall limit myself to the mention of the following particulars. The scene, in general, opens unexpectedly, without very marked antecedent symptoms; sometimes by a rapid and more

or less distinct clouding of the intellectual faculties, and sometimes by deep coma supervening suddenly. There are added to this, in certain cases, convulsions which remind you of those of ordinary epilepsy, but which are nevertheless localized, as a rule, to one side of the body (*epileptiform attacks*). At other times, the convulsions are wanting (*apoplectiform attacks*). In both cases we frequently see developed from the beginning a more or less complete hemiplegia, sometimes with flaccidity, sometimes, but more rarely, with rigidity of the paralyzed limbs. The symptoms may abate progressively in the space of some days, and yet lead to death. This is announced in general by the rapid development of eschars in the sacral region. If, on the contrary, the patient is to survive, the disappearance of the accidental symptoms is not long in ensuing; the hemiplegia is the only symptom which persists still for a time, but it disappears, sooner or later, without leaving any trace.

The attacks are usually reproduced several times, generally after long intervals, during the course of the disease. As far as regards sclerosis in patches, they have been noted three times in the observation III. in the memoir of M. Vulpian, three times in the recorded observation of Zenker, and even seven times in that of M. Leo. These fits have always left behind them a notable and persistent aggravation of all the symptoms of the primary disease.

The sketch which I have just presented to you would be too imperfect, if I did not draw your attention to the disturbances of the circulation and of the temperature which, as a general rule, are manifested in the course of the attacks. The *pulse* is found always more or less accelerated; but, moreover (and this is the important point), the *temperature* of the central parts rises rapidly: it may, in the short time closely subsequent to the invasion, reach 38° C., or even 39° C.[1] Frequently, at the end of twelve or twenty-four hours, it rises up to 40° C., and maintains itself at this figure for some hours without any material alteration in the condition of the patient. But if the patient is to survive, the temperature soon rapidly decreases. A figure above 40° C. almost always brings on the fatal termination.

These modifications of the central temperature have been studied by M. Westphal in the epileptiform and apoplectiform attacks of *progressive general paralysis:* I have found them in the attacks which supervene in the case of patients affected by old hemiplegia consequent upon hæmorrhage or softening of the brain. In order to give you more definite ideas upon this subject, I think it useful to present to you very briefly the details of two observations relating to cases of the last kind.

[1] A temperature of 38° C. is subfebrile, and is equivalent to 100·4° F. A moderately febrile state would be indicated by a temperature of 39° C. (102·2° F.). 40° C. (104° F.) indicates a highly febrile condition. Temperatures above this level are hyperpyretic, and are usually dangerous to life, *e.g.*, 42° C. (107·6° F.).

The first observation has reference to a woman aged thirty-two years, affected with a hemiplegia of the right side, dating from infancy. There was general atrophy, rigidity, and shortening of the limbs, and paralysis, as is generally seen in such cases. This woman was subject to epileptiform attacks. She was brought to the Infirmary some hours after the beginning of an attack more intense than usual. On the very evening of her admission the temperature was beyond 38° C., and on the following day it had reached 40° C. The fits became subintrant: they were repeated about a hundred times a day. Eschars rapidly formed in the sacral region, and death supervened on the sixth day. The thermometer introduced into the rectum stood that day at 42·4° C. At the autopsy we found on the surface of the cerebral hemisphere of the left side a considerable depression, corresponding to a yellow patch, the vestige of a vast focus of softening. The hemisphere was besides atrophied throughout. We were unable to discover any trace of a recent lesion either in the nerve-centres or in the viscera.

The second case is that of a woman of sixty-one years of age, affected with right hemiplegia, consequent upon a cerebral hæmorrhage of two years' date. This woman had already experienced several epileptiform or apoplectiform attacks, otherwise *generally rather slight.* Two hours after the commencement of the symptoms, the temperature taken in the rectum was 38·8° C.—five hours later it rose to 40° C. On the following day, in spite of the cessation of the convulsions, the temperature was 41° C., and on the day after that (the day of death) it reached 42·5° C. Two ochreous masses were discovered at the autopsy, the one seated in the corpus striatum, and the other in the substance of one convolution. There existed no recent lesion capable of explaining the symptoms which had determined death.

It has not yet been granted me to follow day by day, and at various periods of the day, the evolution of the temperature in a case of *apoplectiform attack* supervening in a patient affected with *sclerosis in patches.* Nevertheless, we can gather from several observations partial results, which leave no doubt that, even under this point of view, things proceed in multilocular sclerosis exactly as in progressive general paralysis, and in cases of focalized lesions of the hemispheres. Thus the patient, whose history has been reported by Zenker, was seized towards the end of his life by an apoplectiform attack, followed by hemiplegia of the right side of the body. On the day of the attack, the pulse being 136, the temperature reached 39·6° C. On the following day the thermometer marked 40° C., and on the day after this the paralysis had improved, and the temperature again fell to the physiological standard. In the patient Nolle, recorded by M. Leo, an apoplectiform attack declared itself during the evening. Early on the following morning the pulse was 144 and the temperature was 38·5° C. This attack, the seventh which the patient had experienced, was destined

to terminate in death during the night. In the case of N., whose history has been recorded, in my service, by M. Joffroy, five hours after the invasion of an apoplectiform attack, with incomplete loss of consciousness and general relaxation of the limbs, the rectal temperature was 40·3° C., and the pulse 120. On the following day the apoplectiform symptoms had disappeared, and, at the same time, the pulse as well as the temperature had returned to the normal state.

If I have dwelt at some length upon the modifications which the temperature undergoes, in the apoplectiform and epileptiform attacks of general paralysis and of some other cerebro-spinal affections, it is because, in my opinion, we find in them a character which can, in certain cases, be turned to profit in the diagnosis. It is not necessary, I think, to enter into long details to show how difficult it is in presence of a patient who has just been struck with apoplexy, with or without accompanying convulsions, to decide in accordance with the mere consideration of external symptoms, whether it is a case of *true apoplexy*, resulting from the actual formation of a cerebral clot from hæmorrhage or from softening, or, on the contrary, from a simple *congestive attack*. Now, the examination of the temperature of the internal parts would furnish in such an occurrence a fact decisive of the case. Indeed, I have demonstrated by repeated observations that in true apoplexy, principally when it is connected with cerebral hæmorrhage, the temperature constantly falls soon after the attack, and is maintained, generally during twenty-four hours at least, below the normal rate, even when there ensue and are repeated intense convulsive fits. Now, we have just seen that in the attacks called congestive the temperature, on the contrary, rises from the commencement of the first symptoms beyond the physiological figure, and tends still to rise progressively during the fit.

(*To be continued.*)

Part Second.

REVIEWS.

Observations on the Diseases of the Rectum. By T. B. Curling, F.R.S., Consulting Surgeon to the London Hospital, etc. Fourth Edition, Revised and Enlarged. London: J. and A. Churchill: 1876.

Mr Curling is one of those surgeons who have been led by opportunity and accident into a sort of specialism of a good kind. Well known as an authority of great weight on the diseases of the testicle and the rectum, Mr Curling became so *after* being for years

a surgeon to a large hospital. He was first a surgeon, and then, to a certain extent, a specialist—a very different sort of one, however, from those active, pushing, and advertising young gentlemen of the present day, who are specialists first, and surgeons—perhaps never. The difference between the two classes is often seen, and very neatly displayed, in the manner and date of their literary efforts. The good sort write *their* books *after* a large amount of practical experience, and because they have something to tell the profession, hence their works are largely practical and valuable; the other class write *their* books *before* they have seen much, and for the purpose of impressing the public, hence their works are generally full of learned disquisitions about the two or three centuries after Hippocrates—a good deal of theory expressed in beautiful language—and then a short, somewhat egotistical and biographical, sketch of the great things the author has done, or means to do, in the cure of disease of the arytenoid cartilage, or head of the pancreas. Having no experience, he has nothing to tell the profession; wanting patients badly, he has to use every means of impressing the public. Hence such works are well advertised, either honestly in the lay papers, which is expensive, or more cunningly by the side-wind of a bazaar, a concert, or a garden party! for the benefit of the hospital for disease of the arytenoid cartilage, or for the convalescent seaside home for decayed needlewomen who have had disease of the head of the pancreas.

Mr Curling's book is one of the right sort, has helped the profession, reached its fourth edition, and we may now very briefly quote some of Mr Curling's dicta, founded on practice and tested by experience, on some of the more interesting moot points in the surgery of the rectum.

First, on the merits of ligature and cautery in the treatment of internal piles, Mr Curling says:—"Considerable difference of opinion exists as to which operation—the cautery or the ligature—is the best on the score of freedom from suffering, safety, and speedy recovery without confinement. As respects after-pain, there is little to choose, if care be taken to incise freely before the ligature is applied, and both operations are equally free from danger. The advocates of the cautery have, it is true, magnified the risks of the ligature. But, after a lengthened experience, I can state that, with one exception, no fatal case of operation by ligature has occurred either in my public or private practice. In 1868, a man, aged 52, upon whom I had operated in the London Hospital for internal piles, and afterwards for fistula, was seized with pyæmia, followed by numerous abscesses, and, after a protracted illness of five months, died. Erysipelas and pyæmia have also followed, though very rarely, the operation by cautery. Some amount of danger must be incurred in every kind of operation, serious results sometimes arising from the slightest causes; and the removal of piles cannot be expected to be exempt from risks which may attend a

trifling puncture of the finger.[1] An unfortunate result after an operation for piles, in persons free from organic disease, is, however, entirely exceptional, and, with common precautions, it may be regarded as safe as any operation in surgery.

"I continue to give the preference to the ligature as more convenient to the surgeon and less alarming to the patient. The operation by cautery is more tedious than by ligature, a matter of little moment when the patient is insensible, and special care is necessary in using the cautery to guard against after-hæmorrhage. In a favourable case the patient is able to leave the couch somewhat sooner, and recovery is, on the whole, somewhat more rapid than after ligature, as the healing of the sores does not commence till after the separation of the ligature, a process occupying four or five days, whereas the eschar, or superficial slough produced by the cautery, is cast off sooner. A trouble liable to occur after the removal of piles arises from the sores assuming the characters of an irritable ulcer, which I met with in two instances some years ago. As a rule, I avoid operations for internal piles after the age of 70."

In comparing the operation of excision in cancer of the rectum with other means of treatment, Mr Curling unhesitatingly gives the preference to colotomy:—"I am unwilling to discourage any attempt to cure or relieve so dire a disease as cancer of the rectum by excision, but knowing the danger which must be incurred from hæmorrhage in the operation, the misery likely to ensue from incontinency of fæces, and from contraction in the wound, if healing takes place, as well as the prospect of an early return of the disease, I cannot think that the chance even of a prolongation of life is worth acceptance on the terms offered by such an operation,[2] and I hold that much more is to be gained with less risk to life by another proceeding, viz., lumbar colotomy, which is applicable also to cases in which excision would be impossible.

"In the third edition of this work (1863), I endeavoured to show the advantages which may result in cancer of the rectum from diverting the channel for the passage of the fæces by establishing an anus in the left loin, and in some observations published in 1865,[3] I argued that by this operation we should be able to prevent or mitigate many of the distressing symptoms of this terrible

[1] "In the spring of 1858, no less than four persons died of tetanus in St Mark's Hospital after operations for hæmorrhoids, but at that particular period attacks of tetanus after operations and accidents were unusually prevalent in London, and no case of the kind has occurred since in the special hospital alluded to. In 1873, I saw in consultation a publican, aged 30, who was seized with acute tetanus after the removal of some large piles by ligature by a skilful surgeon of great experience. The case terminated fatally. I have also heard of another fatal case of tetanus after ligature of piles in the Metropolitan Free Hospital."

[2] "I do not allude here to cases of cancer of the anus extending into the rectum. Many such cases are very suitable for excision, as I shall show in the next chapter."

[3] "*Lancet*, January 1865."

disease, and sometimes to retard its progress. I adduced three cases in which lumbar colotomy had been performed chiefly with this view. In one, a lady with a recto-vaginal fistula from carcinomatous ulceration, became almost entirely free from pain after the operation, and improved in spirits, complexion, and general condition, and was able to go out daily in a Bath-chair. She survived the operation three months. The second case was a man aged 45, who suffered considerably in the back and loins, particularly after an evacuation, which was attended with agonizing pain. The symptoms were much relieved by the diversion of the fæcal matter through the artificial anus. He survived eight months, and died exhausted. The third case, a man aged 29, came up to the London Hospital from Yorkshire, suffering severely from cancer of the rectum, which had commenced sixteen months previously. It had advanced until he had lost all power of retaining his fæces, and he was subject to a constant flow of feculent matter with mucus, and sometimes blood. He recovered favourably from the operation. The artificial anus answered well, his motions being regular, the bowels acting twice daily. He soon lost the acute pain in the back, and five months later his appearance was healthy, and he had gained a stone in weight. He subsequently lost flesh and strength, and died from exhaustion nine months after the operation. Since the publication of these cases, colotomy has been performed in painful cancer of the rectum without obstruction, by myself, in six additional cases, and by many other surgeons, with the result of prolonging life far beyond the periods above mentioned, so that colotomy may now be regarded as an established operation for the relief of this distressing disease.[1]"—P. 162, 163.

On the whole subject of malformations of rectum and anus, and the operations necessary for their relief, Mr Curling gives the best account we know of in the English language—full, simple, well arranged, and precise.

The following variety of deformity is well described :—" 5. *Imperforate anus in the female, the rectum being partially deficient, and communicating with the vagina.*—In this form the bowel, after descending well into the pelvis, curves forwards and terminates in an aperture, which is sometimes pretty free, but an operation, if not required for the preservation of life, is usually performed to remove a disgusting infirmity. In a woman aged 28, who was under my care in the London Hospital, and in a girl aged 20, whom I saw in St Mark's Hospital, there was no difficulty in defecation, but they had very little power of retention when the motions were lax. In several instances persons born with this imperfection have passed through life, submitting to the annoyances consequent upon it, and have married and borne children. The

[1] "Amussat long ago suggested the operation for delaying the progress of cancer of the rectum, and prolonging life, but it does not appear that he ever performed it."

woman above referred to, who was under my care in the London Hospital for an affection of the bladder, had been married four years, and her husband had never discovered the malformation, which she studiously concealed, and reluctantly communicated to me. She had not been pregnant." . . . .

"Three different operations have been practised to remedy this imperfection—1. The enlargement of the vaginal outlet; 2. The establishment of a new passage at the natural site, and closure of the abnormal anus; and, 3. Detachment of the rectal outlet from the vagina and its establishment in the natural site."—P. 210–212.

Mr Curling has no experience of the first of these, but the second is a useful one:—"2. A new passage at the natural site may be made by passing a curved director or sound through the recto-vaginal opening into the bowel, with its point directed to the site of the anus, and cutting upon it in the median line, care being taken to carry the incision backwards towards the coccyx and away from the perineum, in order to preserve as wide a barrier as possible between the abnormal and artificial apertures. The opening into the bowel should be free, and its coats should be secured by sutures to the borders of the external wound. In a case operated on by Dr Sharpless, of Philadelphia, and related in an early volume of the *Lancet*, the vaginal opening is reported to have closed spontaneously two months after the operation in the perineum. So fortunate a result is very unlikely to occur, and could happen only when the abnormal aperture is unusually small. A plastic operation will generally be required some time after the establishment of the anus in the natural site. In two cases which have fallen under my notice, the artificial anus had been made too near the original outlet, the intervening septum being so slight as not to admit of an operation for closing the original aperture. In both of them the fæces escaped freely by the vagina, as well as by the artificial opening. After a successful operation in the perineum, no attempt should be made to close the recto-vaginal opening until the artificial anus is fully established, and all dilatation has ceased to be necessary. If the abnormal aperture be small, its contraction and closure may be effected by touching the edges with the actual cautery; but if it be of large size, a plastic operation will be necessary. The edges may be pared and brought together by sutures, the bowels being kept at rest for several days by opiates until union is secured."—P. 213, 214.

The writer, in operating on two cases of this deformity by the above method, found great advantage in dissecting round the rectum, and separating it from the neighbouring soft parts before pulling it down and stitching it to the surface of the opening in the perineum.

The work is well arranged, has an excellent table of contents, and a full index.

The Surgery of the Rectum: Being the Lettsomian Lectures on Surgery, delivered before the Medical Society of London, 1865. By HENRY SMITH, F.R.C.S. Fourth Edition. London: J. and A. Churchill: 1876.

ANOTHER (fourth) edition by a specialist of the right sort, of large experience, and considerable power of argument.

To the three original lectures on Fistula, Stricture, and Piles, a chapter is added on Painful Ulcer. In the first lecture, we have the pathology and treatment of fistula carefully described. Mr Smith's views as to the relation of fistula to phthisis, and on the elastic ligature, are the following:—"It is incumbent upon me to say a few words on a very important point in connexion with the operation for fistula, viz., as to what should be done when, conjoined with this local malady, there is evidence of tubercular disease of the lungs. My own observation teaches me that, as a rule, an operation is far better avoided in such cases. If the disease in the lung be at all extensive we may almost with certainty predict that the wound made by the surgeon will not heal, although there are notable exceptions to this; and if the disease be slighter the wound may heal, but I think that when the discharge from the fistula is arrested the disease in the lung becomes accelerated. When, however, the pulmonary mischief is only very slight and the local disease is severe and harassing to the patient, an operation may be undertaken, and it will give great relief. In one instance when there was extensive fistula and severe pulmonary disease, I operated with the effect of healing up the large wound; but in this case the patient, who had long suffered from chronic phthisis, kept up a discharge by wearing a pea issue in his arm."—P. 41, 42.

"Since the publication of the last edition, the use of the elastic ligature has been introduced into surgery, and it has been tried in certain instances of fistula with success. Mr Allingham has published several cases where this treatment was adopted. It is an advisable proceeding in certain cases, where a patient will not submit to the use of the knife or where he cannot lie up, but of course in anything like severe or complicated cases such a mode of treatment will not be applicable."—P. 43.

In stricture, colotomy, if early, is recommended, with the division of strictures within reach of the finger, if non-malignant. On piles the chapter is mainly a special pleading in favour of the clamp and cautery, as against the ligature, in cases of internal hæmorrhoids. His last report of his treatment is:—"Since the last edition of these lectures was published, I have had a much further experience of this operation, and I have operated between two and three hundred times, in every kind of case, and in some of the utmost severity, and of enormous size, and at all ages, from the beginning of manhood to its very extreme; and I am glad to say that this extended experience convinces me more and more of

the value of this plan of treating severe cases of hæmorrhoids and prolapsus, and of its applicability, especially to cases of this disease, where the surgeon would not venture to preform the operation by the ligature. I am glad to find that the operation is practised by many not only in Great Britain, but also over our colonies and in America. The numerous communications I have received bear witness to the estimation in which this plan of treatment is held. I still insist upon the almost absolute safety of the operation itself, although in two instances death followed it. I felt it my duty to make these two cases known to the profession, and a reference to the details, published in my article on the 'Diseases of the Rectum,' in Holmes's 'System of Surgery,' will show that the cases were quite exceptional, and that the deaths were due to causes independent of the operation itself. I may mention that I have not had a single case where any of those particular effects which ensue upon the ligature has happened, viz., pyæmia, tetanus, secondary hæmorrhage, or long-continued ulceration and abscess."—P. 159–161.

Rather shabbily got up, with a miserable table of contents, and no index; the work owes nothing to its appearance, and is most unhandy for reference.

Illustrations of Clinical Surgery: Consisting of Plates, Photographs, Woodcuts, Diagrams, etc., illustrating Surgical Diseases, Symptoms, and Accidents, also Operative and other Methods of Treatment; with Descriptive Letterpress. By JONATHAN HUTCHINSON, F.R.C.S., Senior Surgeon to the London Hospital, Surgeon to the Moorfields Ophthalmic Hospital, and to the Blackfriars Hospital for Diseases of the Skin, etc., etc. Fasciculi I. to IV. London: J. and A. Churchill: 1875.

THE well-known adages that the more a man has to do, the more work he does; and that the busy man is the one who has most time to spare, receive an excellent illustration in the career of the talented and laborious author of these Plates.

Jonathan Hutchinson is not only senior surgeon to a large and working hospital, a laborious and painstaking teacher in the wards, a lecturer on clinical surgery; but he is also an ophthalmologist and a dermatologist. All his work is thorough and good; he has made his mark both in general surgery and in special subjects; proving that it is not by limitation but by diffusion, not by poring into and slaving at limited and lucrative corners, but by taking a broad view of the whole field of surgical science, that real progress is to be made.

In these fasciculi now coming out, Mr Hutchinson is drawing from his vast stores of accumulated teaching material, drawings, diagrams, photographs, and tables—whatever seems to him most worthy of the notice of the profession. Of the *profession*, for, in

these papers, there is not a trace of the advertising monograph; it is all honest, good, original work; indeed, much of it is so good as to be for teachers, rather than for the taught.

We will not catalogue the contents. Some of the plates illustrate rare or undescribed diseases; others are intended as typical examples of more familiar or usual ones; some are portraits of patients; others are valuable records of pathological appearances; all are rendered practically useful by a descriptive letterpress, which is accurate, intelligible, and yet concise.

We do not know any higher praise that could be given to any work of the kind. The execution of the chromo-lithographs is not equal, some being over-coloured (as Plate V.); others (as Plate VII.) are nearly perfect representations of disease.

Atlas of Skin Diseases: Consisting of a Series of Coloured Illustrations, together with Descriptive Text, and Notes upon Treatment. By TILBURY FOX, M.D., F.R.C.P. London: J. and A. Churchill: 1876.

"ACTING upon the knowledge that the present generation of practitioners possess no complete work of this kind, the publishers of the Atlas now being issued have purchased the copyright and copper-plates of Willan and Bateman's 'Delineations of Cutaneous Diseases,' believing that a work based on this classical publication, but remodelled so as to represent the dermatology of the present day, would best suit the requirements of members of the medical profession. The publishers have succeeded in securing the services of Dr Tilbury Fox, under whose editorial supervision the Atlas will be issued. . . . . Of the 72 plates, more than half will be original, the remainder being those used in Willan and Bateman, but in many cases improved, so as to more faithfully represent the appearances of disease. . . . . The letterpress is entirely new."

Dr Tilbury Fox is so well known as a dermatologist that any work on the subject from his hands will require little comment. Good works, if at the same time cheap, as this work is, as compared with others on the same subject, are sure to be valued; for in such a subject as skin diseases, the pathology, treatment, etc., may change, but the characteristic features of the disease never can.

In such a work as this, would it not have been more convenient for all who may consult it to have had a classification of skin diseases at the beginning of the work, which would have served to guide, especially the beginner, in this department of medicine? The plates are well executed, but some will doubt if those of Willan and Bateman are improved. The treatment in many cases is meagre, but to make up for this we are referred to Dr T. Fox's large systematic work on Skin Diseases for full details; from this, one is obliged to think of the Atlas as a companion to the systematic work.

On Tracheotomy, especially in Relation to Diseases of the Larynx and Trachea. By W. PUGIN THORNTON, Surgeon to the Hospital for Diseases of the Throat. London: J. and A. Churchill. (Undated.)

A MONOGRAPH which limits its range to the description of one operation, and that chiefly in relation to a limited range of cases, ought at least to be complete and full. Possibly it might be too much to expect that it be accurate; and, in the present day, it would be cruel to venture a hope that it might be elegantly, or even grammatically, expressed.

From any evidence to be found in the work, it is hardly possible to believe that its author had ever tried to explain orally the situation of the parts affected to an intelligent student, or he surely would have discovered that his method was deficient in precision.

To begin with, after a careful perusal and re-perusal, we have completely failed to discover where Mr Thornton performs tracheotomy—below, above, or through the thyroid isthmus. It is alluded to thus:—"If the neck is short, or the thyroid gland enlarged, its isthmus may come immediately under the incision, leaving no room for an opening into the trachea; under such circumstances it must be cut, or rather worked through, so as to obviate hæmorrhage as much as possible." What is "working through"? It may be explained by a previous sentence, in which we are told the structures are to be divided by "*snicking*" rather than by a free use of the blade. Snicking may be the same as working through; but there is no verb to snick in our Dictionary, only one to "snicker," to laugh slyly, which is not exactly what one is disposed to do during the performance of an operation, except, perhaps, such an one as the present.

In an operation such as tracheotomy, extreme accuracy and precision of measurement and description of the anatomical relations may be desired and expected. The following sentence hardly comes up to the standard of our expectations:—"The portion of the trachea to be recognised in tracheotomy is that which extends from the cricoid cartilage to the upper border of the sternum. In most persons this is of a good length, but in a small proportion it is very short, so that the cricoid cartilage reaches as low down as the sternum, and in order to get a tube into the windpipe it must be divided, or, in very rare instances, it is only practicable to make an opening through the crico-thyroid membrane."—P. 9.

There is something very comic in the new division of "*persons*" into the two classes of "those in whom the trachea is a good length," and those in whom it is "very short." Apparently there are no intermediate commonplace people; and vistas of unprofitable speculation open out as to what is a "good length." Then there is a fine freshness and boldness in the suggestion dropped

with so much calmness, that, in the short-necked victims, the sternum must be divided, or, in default of this, the crico-thyroid membrane opened.

The thorough mastery of our author over the laryngoscope may explain, on the principle of *non omnia possumus omnes*, his feeble grasp of the English language as a mode of communicating his ideas. He has attained a remarkable skill in the use of this instrument, both as a means of diagnosis and prognosis. Indeed, he would be invaluable in a life-assurance office.

We read as follows, pages 8, 9 :—" Since the laryngoscope has come into practical use, however, any condition of the larynx interfering with respiration can be recognised with certainty and precision. By means of this instrument, not only can the seat, extent, and nature of the disease be determined, but also, for the most part, the constitutional condition on which it depends; and thus, not only the desirability of operating, but likewise in many cases the time at which the operation should be performed, may be fixed; and, moreover, a decided opinion can be arrived at as to the future course of events. Thus, should the disease be either carcinomatous or associated with phthisis, it can be determined that tracheotomy would be undesirable, except in the instances to which reference will be made when discussing these diseases. Should the affection be either chronic laryngitis or syphilitic laryngitis, the necessity of performing tracheotomy may be recognised; *and, further, it may be prognosticated that in the former disease life will be prolonged for some months, but not for a term beyond two years*, and that the tracheal canula will always have to be worn; on the contrary, that *in syphilitic laryngitis life may be prolonged for any natural period*, and also—especially in the most recent forms of the disease, where there is no great distortion of the laryngeal structures—that after a few weeks or months it will be possible to remove the canula. Further, although the dyspnœa in syphilitic laryngitis may be considerable, a laryngoscopic examination will in some cases show that the operation may safely be deferred for some days, in order that the effect of constitutional treatment may be tried. This course could not be adopted in chronic laryngitis, for it would be useless to delay operating when the breathing is much affected, as the stenosis must increase in spite of any treatment." The *italics* are our own.

Our author never uses chloroform during the operation, but freezes the skin with ether spray; but we are a little puzzled by the following sentence, ten lines after the directions against chloroform :—" Should there be insufficient assistance, it would be compulsory to anæsthetize a child, unless it had passed into an asphyxiated condition. The pain occasioned by cutting the skin is done away with by freezing with the spray; that accompanying division of the tissues beneath the skin is not severe, being no more than adult patients can easily bear, and will put up with if an assuring word be spoken to them whilst the operation is pro-

ceeding. Patients have often expressed to me what slight suffering they experienced in comparison with what they expected."

The last elegant sentence would make an excellent puzzle in parsing. We give it up.

The description of the instruments used during and after the operation of tracheotomy is very full and complete. Some are curious, such as "Faradaic battery," "pitchfork retractors," and, in cases of need, a bull's-eye lantern,—to be obtained, we suppose, from the nearest policeman.

A special pillow for placing under the neck seems to be an original invention, as we are told "these pillows can be obtained of Messrs Mayer and Meltzer, of Great Portland Street:—"The special pillow should be a foot long, with a circumference of thirteen and a half inches for an adult, twelve for young people, and nine and a half for a child. It is to be placed under the neck of the patient, thus throwing up the trachea, while, as a rule, it does not materially embarrass the respiration. This simple arrangement I have used for some time past, and have found it of the greatest service, being better adapted for making the trachea prominent than any other plan, while it prevents the head from slipping forwards during the operation—an event which will often happen if an ordinary pillow is employed. Made of linen in the form of a bag, it can be filled with bran when required; but if constructed of indiarubber, which can be distended with air, it is very much more portable. At a private house, if not provided with one of these pillows, the kitchen rolling-pin, wrapped round with towels, according to the thickness required, admirably supplies its place."

In cases where the age of the patient is not accurately known, it may be best to take different sizes of pillows, in case the twelve-inch one for "young people" may not do, instead of the thirteen and half inch one for adults. "Feathers derived from the wing of the common fowl" are to be prepared.

Having prepared the pillows and feathers, with a battery, Dr B. Richardson's bellows, and a suction-syringe for drawing blood from the bronchi, the patient is to be put "into position." But, "before putting a male patient into position, if his beard is long, it may be kept out of the way during and after the operation by dividing it in the middle and tying it into two portions with tape, and thus saved from being cut off. . . . . The position of the operator is a matter for individual choice, though it will probably be found more convenient and comfortable to stand behind the head of the patient, whilst the unpleasantness of having blood coughed into his face is avoided should there be hæmorrhage." And so on, and so on.

We have spent enough space in quotation to show the character of this pretentious production.

Each and all of the well-known text-books give a better account of the operation than can be found in this monograph.

The admirable description in Mr Spence's Lectures on Surgery

is familiar to all surgeons. We recommend Mr Thornton to read and re-read it before attempting to instruct others. In it he will find brevity, accuracy of language, precision of anatomical description, and sound principles, founded on an experience larger, probably, than that of any surgeon living, and yet Mr Spence's name is not alluded to in Mr Thornton's work.

It is illustrated by numerous pictures of instruments, and by three photographs. One depicting the trachea of a patient who died during the operation (which was done *above* a stricture), notwithstanding the use of the battery. The second "Illustrates Portion of Tracheotomy-Tube lodged in the Left Bronchus, it having broken away from its shield, and slipped down the trachea." We are not told why the owner died, and why the tube was not removed. The third "Illustrates Cicatricial Union of Mucous Membrane at Junction of Larynx and Trachea following Incision of Throat."—P. 60.

It may seem a waste of our space thus to go into details regarding a work like this; but the author must be very young, and thus he may improve, and regret the present publication.

The Garden: A Weekly Illustrated Journal of Gardening in all its Branches. Edited by WILLIAM ROBINSON, F.L.S., etc.

AMONGST the illustrated journals of gardening the "Garden" holds a foremost place. Under the editorship of Mr Robinson, it has attained an excellence unsurpassed by any other similar journal of horticulture. It is beautifully illustrated, and the coloured plates of "beautiful and rare flowers" are accurately and exquisitely executed. We can highly recommend the "Garden" to all who take an interest in gardening, especially in Alpine and hardy herbaceous plants, feeling confident that it is worthy of a wide circulation.

Food Chart, etc., of the Alimentary Substances in General Use. By R. LOCKE JOHNSON, L.R.C.P., L.R.C.S., etc. London: Hardwicke and Boyne.

HAD this "Chart" been published in the form of a small book for the vest pocket, it would have been much more likely to attain a wide circulation. It contains much valuable information condensed into small compass. It contains, amongst other chapters, "Classification of the Constituent Alimentary Principles," "Animal Alimentary Substances," "Vegetable Alimentary Substances," "Digestibility of Various Foods," etc. The "Table of Alimentary Substances in General Use" is very valuable, and contains, in parallel columns, "Name," "Adulterations," "Tests for Purity," etc. We have much pleasure in recommending it to our readers.

INFORMATION REGARDING MEDICAL EDUCATION AND EXAMINATIONS.

The following are the Regulations of the General Medical Council on the subject of Medical Education and Examinations:—

I.—Preliminary Examinations.

1. That Testimonials of Proficiency, granted by the National Educational Bodies according to the subjoined list, may be accepted, the Council reserving the right to add to, or take from, the list.

List of Examining Bodies whose Examinations fulfil the Conditions of the Medical Council, as regards Preliminary Education.

(1.) Universities of the United Kingdom.

Oxford.—Examination for a Degree of Arts. Responsions, Moderations, Local Examinations (Senior), Certificate to include Latin and Mathematics.

Cambridge.—Examination for a Degree in Arts. Previous Examination. Local Examinations (Senior), Certificate to include Latin and Mathematics.

Durham.—Examination for a Degree in Arts. Examination for Students in their second and first years. Registration Examination for Medical Students. Local Examinations (Senior), Certificate to include Latin and Mathematics.

London.—Examination for a Degree in Arts. Matriculation Examination.

Aberdeen, Edinburgh, Glasgow, and St Andrews.—Examination for a Degree in Arts. Preliminary Examination for Graduation in Medicine or Surgery. Examination of (Senior) Candidates for Honorary Certificates under the Local Examination of the University of Edinburgh.

Dublin.—Examination for a Degree in Arts. Entrance Examination.

Queen's University (Ireland).—Examination for a Degree in Arts. Entrance Examination. Examination for the Diploma of Licentiate in Arts. Previous Examination for B.A. Degree.

(2.) Other Bodies named in Schedule (A) to the Medical Act.

Royal College of Surgeons of England.—Examination conducted under the Superintendence of the College of Surgeons, by the Board of Examiners of the Royal College of Preceptors.

The Society of Apothecaries of London.—Examination in Arts.

Royal Colleges of Physicians and Surgeons, Edinburgh.—Preliminary Examination in General Education, conducted by a Board appointed by these two Colleges combined.

Faculty of Physicians and Surgeons of Glasgow.—Preliminary Examination in General Literature.

Royal College of Surgeons in Ireland.—Preliminary Examination, Certificate to include Mathematics.

Apothecaries' Hall of Ireland.—Preliminary Examination in General Education.

(3.) Examining Bodies, in the United Kingdom, not included in Schedule (A) to the Medical Act.

Royal College of Preceptors.—Examination for a First Class Certificate.

(4.) Colonial and Foreign Universities and Colleges.

Universities of Calcutta, Madras, and Bombay.—Entrance Examination, Certificate to include Latin.

M'Gill College, Montreal.—Matriculation Examination.

University of Toronto, King's College, Toronto, Queen's College, Kingston, Victoria College, Upper Canada.—Matriculation Examination.

King's College, Nova Scotia.—Matriculation Examination. Responsions.

Dalhousie College and University, Halifax, Nova Scotia.—Matriculation Examination.

University of Fredericton, New Brunswick.—Matriculation Examination.

University of Melbourne.—Matriculation Examination, Certificate to include all the subjects required by the General Medical Council.

University of Sydney.—Matriculation Examination.

Codrington College, Barbadoes.—1. English Certificate for Students of two years' standing, specifying the subjects of Examination. 2. Latin Certificate, or "Testamur."

Tasmanian Council of Education.—Examination for the Degree of Associate of Arts, Certificate to include Latin and Mathematics.

Christ's College, Canterbury, New Zealand.—Voluntary Examination, Certificate to include all the subjects required by the General Medical Council.

The Examiners for Commissions in the Military and Naval Services of the United Kingdom.—Certificate to include all the subjects required by the General Medical Council.

Cape of Good Hope.—Third Class Certificate in Literature and Science granted by the Board of Public Examiners.

South Australia—South Australian Institute, Adelaide.—Preliminary General Examination.

N.B.—A Degree in Arts of any University of the United Kingdom or of the Colonies, or of such other Universities as may be from time to time recognised by the General Medical Council, will be considered a sufficient testimonial of proficiency.

2. That it be recommended to the Licensing Boards not to accept the Certificate of Proficiency in General (preliminary) Education from any of the Bodies, the names of which are contained in the list annually circulated, unless such Certificate testify that the Student to whom it has been granted has been examined in:—1. English Language, including Grammar and Composition.[1] 2. Arithmetic, including Vulgar and Decimal Fractions. Algebra, including Simple Equations. 3. Geometry—First two books of Euclid. 4. Latin, including Translation and Grammar.

And in one of the following optional subjects:—Greek. French. German. Natural Philosophy, including Mechanics, Hydrostatics, and Pneumatics.

3. That students who cannot produce any of the Testimonials referred to in the first Recommendation be required to pass an Examination in Arts, established by any of the Bodies named in Schedule (A) to the Medical Act, and approved by the General Medical Council.

II.—Registration of Medical Students.

1. Every Medical Student shall be registered in the manner prescribed by the General Medical Council.

2. No Medical Student shall be registered until he has passed a Preliminary Examination, as required by the General Medical Council.

3. The commencement of the course of Professional Study recognised by any of the Qualifying Bodies, shall not be reckoned as dating earlier than fifteen days before the date of Registration.

4. The Registration of Medical Students shall be placed under the charge of the Branch Registrars.

5. Each of the Branch Registrars shall keep a Register of Medical Students according to the subjoined Form:—

[1] The General Medical Council will not consider any Examination in English sufficient that does not fully test the ability of the candidate,—*1st*, To write a few sentences in correct English on a given theme, attention being paid to spelling and punctuation as well as to composition. *2d*, To write a portion of an English author to dictation. *3d*, To explain the grammatical construction of one or two sentences. *4th*, To point out the grammatical errors in a sentence ungrammatically composed, and to explain their nature. *5th*, To give the derivation and definition of a few English words in common use.

Form for the Registration of Medical Students.

Date of Registration.	Name.	Preliminary Examination and Date.	Place of Medical Study.

6. Every person desirous of being registered as a Medical Student shall apply to the Branch Registrar of the division of the United Kingdom in which he is residing, according to the annexed Form, which may be had on application to the several Qualifying Bodies, Medical Schools, and Hospitals; and shall produce or forward to the Branch Registrar a Certificate of his having passed a Preliminary Examination, as required by the General Medical Council, and a statement of his place of Medical Study.

Form of Application for Registration as a Medical Student.

I hereby apply to be registered as a Student in Medicine, in conformity with the Regulations of the General Council of Medical Education and Registration of the United Kingdom, for which purpose I submit the following particulars:—

Name of Applicant. (To be written in words at length.)		Preliminary Examination.	Date of Preliminary Examination.	Place of Medical Study.
Surname.	Christian Name.			

Applicant's Signature ———.
Address ———.
Date of Application ———.

To the Registrar of the Branch Council for ———.

N.B.—The above Form of Application, duly and legibly filled up, must be forwarded to the Registrar, post free, and be accompanied by a Certificate of the Applicant's having passed a Preliminary Examination, as required by the General Medical Council; and a statement of his place of Medical Study.

The Certificate of Examination must testify that the Student has been examined in,—1. English Language, including Grammar and Composition; 2. Arithmetic, including Vulgar and Decimal Fractions; Algebra, including Simple Equations; 3. Geometry—First two books of Euclid; 4. Latin, including Translation and Grammar. And in one of the following optional subjects:—Greek; French; German; Natural Philosophy, including Mechanics, Hydrostatics, and Pneumatics.

7. The Branch Registrar shall enter the Applicant's name and other particulars in the Students' Register, and shall give him a Certificate of such Registration.

8. Each of the Branch Registrars shall supply to the several Qualifying Bodies, Medical Schools, and Hospitals, in that part of the United Kingdom of which he is Registrar, a sufficient number of blank Forms of Application for the Registration of Medical Students.

9. The several Branch Councils shall have power to admit special exceptions to the foregoing regulations as to Registration, for reasons which shall appear to them satisfactory.

10. A copy of the Register of Medical Students, prepared by each of the

Branch Registrars, shall be transmitted, on or before the 31st December in each year, to the Registrar of the General Council, who shall, as soon as possible thereafter, prepare and print, under the direction of the Executive Committee, an Alphabetical List of all Students registered in the preceding year, and supply copies of such authorized list to each of the Bodies enumerated in Schedule (A) to the Medical Acts, and through the Branch Registrars to the several Medical Schools and Hospitals.

11. The several Qualifying Bodies are recommended not to admit, after October 1870, to the final Examination for a Qualification under the Medical Acts, any Candidate (not exempted from Registration) whose name had not been entered in the Medical Students' Register at least four years previously.

In the case of Candidates from other than Schools of the United Kingdom, the Branch Councils shall have power to admit exceptions to this recommendation.

The Branch Councils are desired to take means to make these regulations known to the Medical Students at the various Medical Schools.

III.—Age for Licence to Practise.

1. That the age of twenty-one be the earliest age at which a Candidate for any Professional Licence shall be admitted to his final Examination; that the age shall, in all instances, be duly certified; and that a Return of any exceptions to this recommendation allowed by the Licensing Bodies, together with the reasons for such exceptions, be transmitted to the Branch Council of that part of the United Kingdom in which they have been granted.

IV.—Professional Education.

1. That the course of Professional Study required for a Licence shall comprehend attendance during not less than four Winter Sessions, or three Winter and two Summer Sessions, at a School recognised by any of the Licensing Bodies mentioned in Schedule (A) to the Medical Act.

2. That the following are the subjects without a knowledge of which no Candidate should be allowed to obtain a qualification entitling him to be registered:—1. Anatomy. 2. General Anatomy. 3. Physiology. 4. Chemistry. 5. Materia Medica. 6. Practical Pharmacy. 7. Medicine. 8. Surgery. 9. Midwifery. 10. Forensic Medicine.

Chemistry should include a knowledge of the principles of Chemistry, and of those details of the science which bear on the study of Medicine.

Medicine and Surgery should include a knowledge of Systematic and Clinical Medicine and Surgery, and also of Morbid Anatomy.

3. That it be recommended to the several Licensing Bodies that the courses of instruction required by them be framed in such a manner as to secure a due share of attention, both to preparatory branches and to those more strictly connected with the Practice of Medicine and Surgery; and that it be suggested accordingly to these Bodies, that their regulations should be such as to prevent attendance upon Lectures from interfering with Hospital and Clinical Study.

4. That the Council will view with approbation any encouragement held out by the Licensing Bodies to Students to prosecute the study of the Natural Sciences before they engage in studies of a strictly professional character.

V.—Professional Examination.

1. That it is desirable that the different Licensing Bodies should combine their Examinations, when this is practicable, so as to secure that the knowledge of every Practitioner whose name appears on the Register shall have been tested in all the subjects of Professional Education which the Council has determined to be essential, viz.:—1. Anatomy. 2. General Anatomy. 3. Physiology. 4. Chemistry. 5. Materia Medica. 6. Practical Pharmacy. 7. Medicine. 8. Surgery. 9. Midwifery. 10. Forensic Medicine.

2. That those Licensing Bodies which have not already done so, be requested to furnish a statement of the dates of their Examinations and of the modes in which such Examinations are conducted, whether by written, oral, or practical Examination, and of the length of time a Candidate is under Examination in each or all of these ways; and that the Registrar transmit these Reports to the

Members of the Council, in order that they may be taken into consideration at the next meeting of the several Branch Councils.

3. That the Professional Examination for any Licence be divided into two parts ; the first embracing the primary or fundamental branches directly connected with the practice of Medicine and Surgery; that the former be not undergone till after the close of the Winter Session of the second year of professional study; and the latter, or final Examination, not till after the close of the prescribed period of professional study.

4. That the Examination in Physics, Botany, and Natural History may be undergone at an earlier period than the first Professional Examination.

5. That the Professional Examinations be conducted both in writing and orally; and that they be practical in all branches in which they admit of being so.

6. That not less than two Examiners, or one Examiner with an Assessor, should be present at every Oral Examination.

7. That the Oral Examinations should be so far public as to be open at least to the Medical and Surgical Graduates, or members of the Examining Body.

8. That the questions to be answered in writing should be so numerous, and embrace such a variety of the details of each subject, as may adequately test the proficiency of the Candidate; and that they should be submitted to the whole body of Examiners for consideration and revision, if desirable, before being proposed to the Candidates.

9. That the written answers should be submitted to more than one of the Examiners.

10. That excellence in one or more subjects should not be allowed to compensate for failure in others.

12. That Examiners should only be elected for definite periods, with power of re-appointment.

13. That the Professional Examinations be held by the several Licensing Bodies, except in special cases, at stated periods, to be publicly notified.

14. That returns from the Licensing Bodies in Schedule (A) be made annually, on the 1st of January, and in the subjoined form, to the General Medical Council, stating the number and names of the Candidates who have passed their first as well as their second and third Examinations, and the number of those who have been rejected at the first and second and third Examinations respectively; and that the Registrar forward a sufficient number of forms, with a notice for their being returned in due time.

Table of Return of Professional Examinations, and their Results.

Licensing Bodies.	Qualifications.	No. Passed.			No. Rejected.		
		1st Exam.	2d Exam.	3d Exam.	1st Exam.	2d Exam.	3d Exam.

15. That for the future the Licensing Bodies, which do not already do so, distinguish separately in their Returns the names and numbers of Candidates examined, and the numbers of those passed and rejected at the examinations for each of the qualifications conferred.

16. That it is not desirable that any University of the United Kingdom should confer any degree in Medicine or Surgery, whether that of Bachelor, Doctor, or Master, upon Candidates who have not graduated in Arts, or passed all the Examinations required for the Bachelorship in Arts, or the Examinations equivalent to those required for a degree in Arts.

1836–1876.

To those whose personal acquaintance with medical education goes back for forty years and more, it seems natural to ask, Has much come of all the attendance on lectures now exacted, and the remarkable addition which has taken place to examinations during a comparatively recent period? Are the young doctors of 1876, as a rule, better equipped, more capable and trustworthy, than their predecessors of 1836? "They ought to be," seems a suitable reply, for various reasons. 1. The preliminary examinations to which, in the present day, they are all subjected, secure an amount of general education to the many which was formerly possessed by a limited number; and, at all events, diminish the risk which once existed of flagrant exhibitions of ignorance and illiterateness. 2. There are greater public facilities afforded now, to all students, even the poorest, for mastering the human bones; and those who are inclined to be idle and thoughtless are insured a certain amount of familiarity with them by tutorial instruction. 3. Practical chemistry is probably now brought to the door of all, whether zealous or indifferent, to a greater extent than at the earlier period, although this may be questioned. 4. The use of the microscope is now taught, which was not the case formerly, and all, we imagine, should be more or less familiar with it. 5. The facilities for the study of morbid anatomy are now greater, instruction being given systematically in the course of pathology, and also in the Royal Infirmary. 6. Classes for practical surgery are taught, and although not as yet imperative, are attended by many. This is a manifest addition to the educational advantages of young men about to enter on the responsibilities of practice. 7. Among the advantages possessed by students of the present day, it is proper to mention the first, second, and third examinations, which have taken the place of the single final one of a former generation. By this arrangement, a great mental relief must be experienced when certain subjects are successively lifted off, and the faculties set free to cope with the remainder, unencumbered by anxiety regarding those which have been disposed of already. To the conscientious, diligent student, this must be a great boon, although, of course, to the idle and procrastinating who have, nevertheless, unexpectedly perhaps to themselves, passed the ordeal, it may prove self-deceptive and permanently hurtful. Still, on the whole, these successive examinations may be regarded as advantageous. We say this, however, without being quite convinced in our own mind that these numerous examinations secure that none but right men are admitted into the profession more certainly than the old method did, especially at the Edinburgh College of Surgeons. The candidate for a diploma was seated at a table in those days, with four Fellows of the College, two of whom, in rotation, examined him on the various branches of his entire curriculum, while the others looked on and listened. There was

no sharp line drawn betwixt the different subjects: anatomy, physiology, and surgery slid into each other; so did chemistry, materia medica, and practice of physic. Was it a likely thing that four honest, competent, and practical men, who were all enabled to take, so to speak, a bird's-eye view of the whole examination, would make so great a mistake as to allow a man to pass who could not be safely trusted with the health and lives of the community? They had also a good opportunity, too, of coming to a sound opinion as to his judgment or νους, which successive pairs of examiners, limited to one subject, will hardly feel themselves entitled to do. This by the way.

As a farther boon in connexion with examinations, it is fair to mention that the field is now restricted, by previous intimation, to certain topics in the subjects of chemistry, botany, and natural history, so that the student can prepare for the ordeal with less distraction.

8. In drawing a comparison betwixt the two periods, it must also be borne in mind that every branch of professional knowledge has presumably advanced during the interval, so that the graduates and licentiates of 1876 ought, *ceteris paribus*, to be in advance of those of forty years ago.

We have said that they *ought* to be, for the reasons specified. Let us now consider some disadvantages which the student of the present day seems to have, in consequence, we believe, of the increased number of things which claim his attention.

1. We doubt if anatomy holds the same place now, in the time bestowed upon it, as it did forty years ago. We are thinking chiefly of regional or relative anatomy, a knowledge very essential to the satisfactory practice of both surgery and medicine. There were portions of the human frame to which students applied their minds with great earnestness in those bygone days, which now seem to be studied much in the same style as other portions obviously less important to either the surgeon or the physician; and we imagine that the histological examination of tissues, which is less vitally important, and may be deferred, occupies too large a share of their available time. 2. A similar remark may be hazarded in regard to physiology, which used, with great appropriateness, to be called the Institutions of medicine. We have noticed that, of late years, students are more familiar with points of a recondite and possibly still debatable nature, occupying the border-ground between physiology and minute anatomical researches, than with the generally received and fundamental truths which are subsidiary to the intelligent practice of their profession. No facts, if really ascertained, are to be despised; but, in the overcrowded hours of a young man's curriculum, surely those which are practically important demand his primary attention. 3. This last remark is generally applicable throughout the whole course of study. *Ars longa, vita brevis,* should be the motto of every medical student, remembering that, at the end of his four or five years, he

will be launched on the world, with a permission from his university, or his extra-mural teachers, to practise an onerous and very responsible profession. In this view, what we said in regard to anatomy and physiology becomes still more applicable to surgery and medicine. How is the student to get a competent knowledge of these, which are to constitute the chief occupation of his future life? We do not see how the majority of young men can dispense with systematic courses of lectures—even were that permitted, which it is not—because such oral instruction, aided and impressed by information conveyed through the eye, is more likely to take hold of the mind than the mere perusal of books at home, at least in the first instance. Besides, would many students have perseverance enough to read the books from end to end? We take for granted, therefore, that the present plan by systematic lectures must be continued; but it should not be overdone, so as to interfere with opportunities of becoming practically familiar with diseases and injuries, and their appropriate treatment. It is obvious that we are now concerned with the supremely important stage of the whole curriculum, if the previous stages have been gone through in a conscientious manner. What are the available modes of turning it to the best advantage? The diseases and injuries must be seen; their phenomena and characters must be pointed out by experienced teachers; their appropriate management must be witnessed by the young aspirant, and in due time, if the thing can be managed, the latter must himself essay to treat cases of disease or injury under the eye of his clinical teachers. It is a matter of regret that where students are numerous there must be difficulty in carrying out this ideal to the full extent; but we believe that all students *adequately alive* to the importance, the necessity, of such practical instruction, will secure it more or less amply in the wards of the Hospital, or by attendance at Dispensaries. If unable to procure a dressership in the former, or a pupil's appointment in the latter, an earnest student with a will not easily balked may gather much information and practical knowledge by associating himself with a friend or companion whose circumstances have been more fortunate. And it is a good plan for those who dread entering at once on the responsibilities of an independent position, to see some general practice, in the first place, by getting an assistantship to a surgeon in the country. The old apprenticeship system, which had some disadvantages, gradually came to an end, or nearly so, in Scotland when druggists became common, and the medical classes more numerous; but it was attended by a real benefit in familiarizing young men with many details of practice not otherwise readily attained.

Having endeavoured to point out some of the abatements which must be made from the advantages really possessed by the students of the present day, depending chiefly, as we think, on the extent of the curriculum, and on mistakes as to the relative importance

of the topics embraced in it, we would now offer a few suggestions as to the way in which these may be counteracted.

1. Having previously learned the bones as thoroughly as that can be done, without some knowledge of the muscles and other soft parts, apply yourself to dissection with interest and perseverance, doing no part of it in a slovenly manner, and following the directions of an approved dissecting manual. Trace thoroughly the vessels and nerves. Do not be satisfied till you have examined carefully the several joints of the part, and the insertions of the tendons. If the process of decomposition is advancing rapidly, do not abandon the part, but continue to make the most of it to the last. You will derive more benefit from one part thus conscientiously worked at and finished, than from several commenced and thrown aside. After having attended a course of surgery, you will dissect the more important regions, such as the groin, the perinæum, the lateral view of the pelvis, the neck, with increased intelligence and interest; and in like manner, a course of pathology and practice of physic will send you back to the cavities of the head, the chest, and the abdomen, with a new desire to be acquainted more accurately with their contents. But be sure, on the first occasion of dissecting any part of the body, to learn as much from it as if no subsequent opportunity were probable. Your knowledge of anatomy is fundamental, and will stick to you through life, if once thoroughly acquired.

2. We have alluded to the study of physiology, with no wish to disparage the histological and experimental investigations connected with it, but with a desire to draw the student's attention, in the meantime at least, to those established facts and principles which underlie all sound practical knowledge of his profession, and which prepare him for the business of his life.

3. With continual reference to an employment so responsible, embracing as it does the practice of surgery, medicine, and midwifery, let him have his eyes open no less than his ears, so that he may become familiar with diseased appearances, with the outward physiognomy of internal complaints, and with the more ordinary means of treatment. A great deal is to be learned in this way, which will escape the mere attender on lectures and the reader of handbooks, and which alone can prevent the new-fledged doctor from exposing himself to the ridicule, or contempt it may be, of anxious mothers and experienced nurses. What would be thought of a youth who, on being called to a case of measles, should ask the mother if her child always possessed so high a complexion? or when a tooth, far from dentists, required extraction, satisfied himself by ordering a dose of salts, because he felt incompetent for the operation, having never tried to perform it?

Is it out of place to impress on students the necessity of having *principles* of treatment—of being able to give a reason for what they perform in surgery or prescribe in medicine? Some men seem to have no guiding views in contemplating a case; they

know that in certain circumstances certain things are usually done; they prescribe for the name of a disease, not for the diseased person with his special symptoms, or, more accurately, with his special morbid condition giving rise to the symptoms. A well-informed and thoughtful man, on the other hand, endeavours to ascertain, by the means at his disposal, what is really wrong with his patient, and selects his remedies accordingly. His conclusions may be erroneous occasionally; but he is a much safer man in the long-run, than him to whom a plan of treatment is glibly suggested by the name of a disease or injury with which it has become, somehow, associated in his mind.

In fact, nowadays, this tendency needs to be striven against, not by students merely, but by us all. The journals are absolutely teeming with supposed new therapeutic agents, the efficacy of which often rests on the slenderest foundation. On inquiry, it will be found, in many instances, that the writers, whether at home or abroad, are young inexperienced men, who, having little to do and less responsibility, are endeavouring to trumpet forth their own names, and really do not care much whether or no a real addition is made to the *armamentarium* of the profession. They come to be spoken and written about, without their Christian names, as Brown of Bristol, Jones of York, Robinson of Leeds, Doser of Munich, and our distinguished confrère Sansdoute of Montpellier. Everybody is tempted to try the medicine or lotion for a time. It is the fashion, the rage; patients hear of it, and consider themselves ill-used if their experienced medical adviser, who has watched over them hitherto, fails to employ it. "Poor man! he has been long off the irons; it is time for him to retire." We allude to this tendency here, because young doctors are in this way led almost inevitably, we fear, to overlook the recognised principles and attainments of practice, and so, sooner or later, to withhold from the community much that the *genuine* progress of knowledge and science would otherwise insure to them. Real progress has been made, we gladly admit; but, in order to appreciate it wisely, we must look back a number of years. Before concluding these remarks, we have two pieces of advice to offer to the rising generation of young doctors.

1. They would do well to have this idea planted in their mind, that while there is a sure but slow enlargement of knowledge going on, this is always accompanied by the dropping out of view of not a few attainments which characterized and conferred benefit on previous generations. The great men of the profession have left many valuable things in their writings for our advantage, if we peruse them with respect and reverence; but over and above these, they had *personal* qualifications which impressed their contemporaries, but necessarily died with them. Besides knowledge, they had wisdom: which two things, as we know, "have ofttimes no connexion." When a capable and sagacious man in medicine or surgery departs, a great public loss is sustained; a

power disappears, which may never be restored. It is, therefore, a wholesome thing for all, more particularly young men, to bear in mind, that the advance of our science and art, chiefly the latter, is like a tide ebbing and flowing. This thought will keep us humble, while it stimulates every young man to assert his individuality, and do what he can soberly and conscientiously to benefit his day and generation.

2. Our last recomendation is to read carefully and heartily the monographs and well-considered writings of the eminent men who have preceded us, specially of our own country during the last hundred years. Systematic books of the present day—if they are not too long—are useful for the student; but they must emphasize the more important subjects and be easily mastered and assimilated. But let him look forward to something better, and, as a rule, more racy and interesting, to those spontaneous books—spontaneous, because the writer had something special to say—which indicate like milestones the course by which our present position has been reached. In anatomy and surgery, for example, the period named would embrace John and William Hunter, the Monroes, Percival Pott, William Hey, John and Charles Bell, Abernethy, Cooper, Wardrop, Lawrence, Hodgson of Birmingham, Allan Burns, Colles, Syme, and others whom time would fail us to mention. We may be biased, but our opinion is, that in the writings of these men, and in the first twenty volumes of the Medico-Chirurgical Transactions, there is a wholesome method, tone, and style of professional writing which is fitted to counteract some retrograde tendencies of our current literature. There will be found in these sources more modesty, more caution, more sobriety, and, we will add, better English, than in the great bulk of recent publications.

The following pages contain a tabular abstract of the regulations of the various Licensing Boards, as well as a list of the Hospitals, Dispensaries, etc., attached to our Scotch Medical Schools; also the regulations for the Army, Indian, and Navy Medical Services. The space at our disposal does not allow of more detailed information. But, in point of fact, the regulations of all Licensing Boards now correspond much more closely than they used to do, and the regulations of the General Medical Council afford a key to the general requirements of all of them. For special information, application should always be made to the Secretaries of the Licensing Boards; or, in the case of the Universities, recourse may be had to the published Calendars.

The *Preliminary Examinations* are usually held before the commencement, and at the end, of the Winter Session,—viz., in October, March, or April—sometimes also at the end of the Summer Session. The Professional Examinations in Universities are usually after the Winter and during the Summer Sessions; in Edinburgh, however, the first Professional is held in October as well as April. The other Licensing Boards' examinations are held at various periods throughout the year. Special examinations, under circumstances of urgency, can be held at almost any time; but they, of course, entail considerable addition to the expense.

COURSE OF STUDY REQUIRED BY THE VARIOUS BOARDS OF THE UNITED KINGDOM.

	Age.	Anatomy.	Dissections.	Chemistry.	Practical Chemistry.	Materia Medica.	Physiology or Institutes of Medicine.	Surgery.	Practice of Medicine.	Midwifery.	Medical Jurisprudence.	Pathology or Morbid Anatomy.	Botany.	Natural History.	Practical Pharmacy.	Clinical Surgery.	Clinical Medicine.	Hospital Attendance.	Practical Midwifery.	Dispensary or Out-door Practice.	Vaccination.
	Years.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	
Edinburgh University, M.B. & C.M.,	21	6	6	6	3	6	6	6	6	6	3	6	3	3	3	6	6	24	8 mo., or 6 cas.	6	
University of Glasgow, M.B. & C.M.,	21	6	6	6	3	6	6	6	6	6	3	6	3	3	3	6	6	24	do.	6	
University of Aberdeen, M.B. & C.M.,	21	6	6	6	3	6	6	6	6	6	3		3	3	3	6	6	24	do.	6	
University of St Andrews, M.B. & C.M.,	21	6	6	6	3	6	6	6	6	6	3	6	3	3	3	6	6	24	do.	6	
London University, M.B.,	21	6	12	6	1 crs	1 crs	6	6	6	1 crs	1 crs	1 crs			1 crs	2 yrs.	2 yrs.	4 yrs.	20 cas.	6	
University of Durham, M.B. & M.D.,	21																				
Dublin University, M.B.,		6	6	6	3	3	3	6	6	6	3		3				9	24	6 mo.		
" " Surgical Diploma,		12	18	6	3	6	18	12	6	6	3		3			27	27	27			
The Queen's University of Ireland, M.D.,		12	12	6	3	6	12	6	6	6	3		3	3	3 mos.	12	12	24	3 mo.		
Royal College of Physicians, London,	21	12	12	6	3	3	12	6	12	3	3	6	3		3		9	24	20 cas.		
Royal College of Physicians, Edinburgh,	21	6	6	6	3	3	6	6	6	3	3	3	3		3	3	6	24	6 cases		
King and Queen's Col. of Phys. Ireland,	21	6	12	6	6	6	6	6	6	6	6		6			6	21	27	6 mo.		
Royal College of Surgeons, London,*	21	12	12	6		3	12*	12	6	3					3	27*	9*	33			Cert.
Royal College of Surgeons, Dublin,	21	18	18	6	6	3	18	18	6	3	3					18	9	27			
Royal College of Surgeons, Edinburgh,	21	12	12	6	3	3	3	6 or 12	6	3	3	3			3	6 or 12	6	24	6 cas.	6	Cert.
Faculty of Phys. and Surgeons, Glasgow,	21	12	12	6	3	3	3	6 or 12	6	3	3				3	6 or 12	6	24	6 cas.		
For Double Qualification by Royal College of Phys. and Surg. of Edinburgh,	21	12	12	6	3	3	3	6 or 12	6 or 12	3	3	3			3	6 or 12	6 or 12	24	6 cas.	6	Cert
For Double Qualification by Royal College Phys. Edinburgh, and Faculty of Physicians and Surgeons of Glasgow,	21	12	12	6	3	3	6	6 or 12	6	3	3	3			3	6 or 12	12	24	6 cas.		
Apothecaries' Hall, England,	21	12	6	6	3	3	6		12	3	3	6	3		Appr.		27	27	20 cas.		9 mo.
" " Ireland,	21	6	12	6	3	3	6	6	6	6	3		3		Appr.	9	18	27	20 cas.		

English Poor-Law Board.—Candidates for the appointment of Medical Officer are required to be registered under the Medical Act, and must be legally qualified to practise both Medicine and Surgery, in virtue of Diplomas or Licences granted by competent legal authority in England, Scotland, or Ireland.

Information respecting exceptions to these regulations under various circumstances, and other details as to the order in which, according to some Licensing Bodies, the courses should be taken out, etc., must be obtained by consulting the published Charts of the Colleges, etc. Students should apply to the Secretary to each Board which they intend to pass for a detailed copy of its Regulations.

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* Students from the Schools of Scotland are admitted to examination at the Royal College of Surgeons of England, if they have followed the course of study required by the regulations of the Royal College of Surgeons of Edinburgh. Students in Scotland, therefore, are not required to attend more than one course of Physiology, six months Clinical Surgery, six months Clinical Medicine, and twenty-four months Hospital.

MEDICAL SCHOOLS OF SCOTLAND, 1876–77.

WINTER SESSION.

Subjects.	University of Edinburgh.	School of Medicine, Edinburgh.	University of Glasgow.	Anderson's University, Glasgow.	University of Aberdeen.	University of St Andrews.
Anatomy, Systematic and Practical, with Demonstrations.	Professor Turner.	Dr Handyside.	Professor A. Thomson.	Dr A. M. Buchanan.	Professor Struthers.	...
Physiology, or Institutes of Medicine.*	Professor Rutherford.	Dr M'Kendrick.	Professor A. Buchanan.	Dr E. Watson.	Professor Ogilvie.	Professor Pettigrew.
Chemistry, and Practical Chemistry.	Professor C. Brown.	Drs Macadam and King.	Professor J. Ferguson.	Professor Dittmar.	Professor Brazier.	Professor Heddle.
Materia Medica and Therapeutics.	Professor Christison.	Dr Moinet.	Professor Cowan.	Dr Morton.	In Summer.	...
Practice of Medicine.	Professor * * *	Dr Haldane.† Dr Muirhead. Dr Grainger Stewart.	Professor Gairdner.	Dr Wood Smith.	Prof. Smith-Shand.	...
Surgery.	Professor Spence.	Dr Watson.† Mr Jos. Bell. Mr Chiene. Dr John Duncan.	Professor Macleod.¶	Dr Dunlop.	Professor Pirrie.	...
Midwifery.	Professor Simpson.	Dr J.M.Duncan.	Professor Leishman.	In Summer.	Professor Stephenson.	...
Natural Philosophy.	Professor Tait.	...	Professor Sir Wm. Thomson.	Prof. Forbes.	Professor Thomson.	Professor Swan.
Natural History.	Professor Sir Wyville Thomson.	Dr A. Wilson.	Professor Young.	...	Professor Nicol.	Professor Nicholson.
General Pathology.	Professor Sanders.	Dr Wyllie.	...	...	...	...
Clinical Medicine.	Professors Maclagan and Sanders.	Drs Haldane,‡ Balfour, G. Stewart, and J.M.Duncan.	The Physicians of the Western and Royal Infirmaries.		Drs Smith-Shand, Beveridge, and Fraser.	...
Clinical Surgery.	Professor Lister.	Dr Watson.† Mr Annandale.	The Surgeons of the Western and Royal Infirmaries.		Drs Pirrie, Ogston, and O. Will.	...

* This course is equivalent to that given under the name of General Anatomy and Physiology in the English Schools. Special schedules are issued by the London Boards for their Scotch students, which should always be inquired for.

† These are not conjoint courses, but separate ones by the gentlemen named.

‡ This is a joint course.

¶ Dr Cameron also lectures extra-murally on Systematic Surgery, at 151 George Street, between 11 and 12.

MEDICAL SCHOOLS OF SCOTLAND, 1877.

SUMMER SESSION.

Subjects.	University of Edinburgh.	School of Medicine, Edinburgh.	University of Glasgow.	Anderson's University, Glasgow.	University of Aberdeen.
Practical Anatomy and Demonstrations.	Professor Turner.	Dr Handyside.	Professor A. Thomson.	Dr A. M. Buchanan.	Professor Struthers.
Botany.	Professor Balfour.	...	Professor A. Dickson.	Mr Hennedy.	Professor Dickie.
Materia Medica.	...	Drs Moinet and Craig.	...	...	Professor Harvey.
Midwifery.	...	Drs Keiller,* Macdonald, and Underhill.	...	Dr J. G. Wilson	...
Medical Jurisprudence.	Professor Maclagan.†	Dr Littlejohn.†	Professor Simpson.†	Dr Alexander Lindsay.	Professor Ogston.†
Comparative Anatomy.	Professor Turner.	Dr Handyside.	...	...	Prof. Nicol.
Histology.	Professors Rutherford and Sanders.	Dr Wyllie.	...	...	Professor Struthers.
Practical Chemistry.	Professor Crum Brown.	Drs Macadam and King.	Professor J. Ferguson.	Professor Dittmar.	Prof. Brazier.
Natural History.	Professor Sir Wyville Thomson.	Dr A. Wilson.	Professor Young.	...	Prof. Nicol.
Clinical Medicine.	Professors Maclagan and Sanders.	Drs Haldane,‡ Balfour, G. Stewart, and J. M. Duncan.	The Physicians of the Western and Royal Infirmaries.		Drs Smith-Shand, Beveridge, and Fraser.
Clinical Surgery.	Prof. Lister.	Dr Watson.* Mr Annandale.	The Surgeons of the Western and Royal Infirmaries.		Drs Pirrie, Ogston, and O. Will.

Operative Surgery is taught during the Summer by Messrs Bell and Chiene and Dr Duncan. Instruction in Vaccination is also given at the Royal Public Dispensary, Edinburgh, on Wednesdays and Saturdays at 12, both Summer and Winter, by Dr Husband; at the Faculty Hall, Glasgow, on Mondays at 12, by Dr Dunlop; and at the Royal Infirmary, Glasgow, on Mondays and Thursdays at 12 o'clock, by Dr Tannahill. Medical Psychology and Insanity are taught in Summer by Dr Laycock and Dr J. B. Tuke; the Diseases of Children by Dr Peel Ritchie; and the Diseases of the Eye by Dr Argyll Robertson.

* These are not conjoint courses, but separate ones by the gentlemen named.

† Dr Ogston delivers his courses only in Winter. Dr Littlejohn gives courses during both the Winter and Summer Sessions. Dr Maclagan also lectures during both Summer and Winter. The Winter Course is chiefly intended for law students, but is open to medical students also. Dr Simpson's lectures on Forensic Medicine have hitherto been delivered during the Winter Session, and this practice will be continued during the Winter Session of 1876-7. The usual course will also be delivered during the Summer Session of 1877, daily at 11 A.M., and thereafter during the Summer Session only.

‡ This is a joint course.

*** For additional Summer Courses on special subjects, see the Prospectus of each School.

LIST OF HOSPITALS, DISPENSARIES, ETC., IN CONNEXION WITH THE MEDICAL SCHOOLS OF SCOTLAND.

EDINBURGH.

Royal Infirmary, including Lock Hospital. Upwards of 560 Beds. Visits daily from 12 till 2 p.m. Physicians—Drs Maclagan, Sanders, and * * * Professors of Clinical Medicine; Professor Simpson (for Diseases of Women); Drs D. R. Haldane, G. W. Balfour, and Grainger Stewart, Clinical Lecturers; Dr J. Matthews Duncan (on Diseases of Women). Assistant Physicians—Drs Claud Muirhead and Brakenridge. Pathologist, Dr John Wyllie.

Surgeons—Mr Lister, Professor of Clinical Surgery; Professor Spence; Dr P. H. Watson; Mr Annandale; and Mr Joseph Bell. Assistant Surgeons, Dr John Duncan and Mr Chiene. Consulting Surgeons, Dr Dunsmure and Dr Gillespie. Ophthalmic Surgeons, Mr Walker and Dr Argyll Robertson. Dental Surgeon, Dr John Smith.

Convalescent House, Corstorphine. Visiting Medical Officer, Mr Chiene.

Chalmers Hospital for the Sick and Hurt. 24 Beds for medical and surgical patients. Physician, Dr Halliday Douglas. Surgeon, Dr P. H. Watson.

Royal Maternity Hospital. 36 Beds; about 250 in-patients and 350 out-patients yearly. Consulting Physicians, Drs Moir and Graham Weir. Physicians, Drs Keiller, Ziegler, Matthews Duncan, and Professor Simpson. Consulting Surgeon, Dr Dunsmure.

Royal Hospital for Sick Children. 60 Beds; average number of out-patients, about 5600. Consulting Physicians, Professor Sir Robert Christison, Dr C. Wilson, Dr Graham Weir, and Dr Matthews Duncan. Consulting Surgeon, Professor Spence. Physicians, Drs R. Peel Ritchie, J. Linton, J. Dunsmure, jun., and Macdonald. Extra Physicians, Drs J. Andrew and J. Cumming. Surgeon-Dentist, Dr Smith. Pathologist, Professor Sanders. Ophthalmic Surgeon, Dr Argyll Robertson.

Royal Public Dispensary and Vaccine Institution. About 12,700 patients annually. Medical Officers, Professors Sanders and Spence, Drs Ritchie, Linton, Husband, Andrew, D. Wilson, Moinet, Alex. Sinclair, Gordon, and Playfair. Physician-Accoucheurs, Drs Keiller, Matthews Duncan, Wilson, and Andrew. Superintendent of Vaccination, Dr Husband. Medical Secretary, Dr Andrew. Clinique daily at 2 p.m. Vaccination on Wednesdays and Saturdays at 12 noon. Apothecary, Mr R. Urquhart.

New Town Dispensary. About 10,000 patients annually. Medical Officers, Drs Cunynghame, Affleck, Cadell, Dunsmure. Wyllie, Underhill, Cumming, Ritchie, and Carmichael. Physician-Accoucheur, Dr Angus Macdonald. Superintendent of Vaccination, Dr Affleck. Clinique daily at 2 p.m. Vaccination on Tuesdays and Fridays from 12 to 1.

Royal Asylum for the Insane. About 660 patients. Physician, Dr Clouston.

Eye Infirmary, 6 Cambridge Street, Lothian Road. Surgeons, Benjamin Bell, Esq., F.R.C.S., and Joseph Bell, F.R.C.S. Assistant Surgeon, Dr J. Kirk Duncanson. Open daily at 1 p.m. Average number of patients annually, 900.

Eye Dispensary, 54 Cockburn Street. About 2000 patients annually. Surgeons, Mr Walker, Dr Wilson, and Dr Argyll Robertson. Open Mondays, Wednesdays, and Fridays, at 1 p.m. Clinical instruction during the summer session.

Ear Dispensary of Edinburgh, 17 Thistle Street. Drs T. Keith and Blair Cunynghame, and Mr Chiene. Open Tuesdays at 11.

Ear Dispensary, 6 Cambridge Street, Lothian Road. Surgeon, Dr J. J. Kirk Duncanson. Open Mondays and Thursdays, from 12 to 1 o'clock.

Dental Dispensary, 38 Cockburn Street. Consulting Surgeon, Professor Spence. Consulting Physician, Dr Sanders. Dental Surgeons, Dr Roberts, Mr Knox Chisholm, Mr Swanson, W. Chisholm, A. Cormack, and John Wight. Daily, 9 to 10 a.m. Average number of patients, 4000 per annum.

GLASGOW.

Royal Infirmary. 583 Beds. Visits daily at 9 a.m. Physicians, Drs W. T. Gairdner, Perry, M'Laren, M'Call Anderson, and Scott Orr. Physicians to out-patients, Drs Lindsay, Charteris, Wood Smith, and D. C. Black. Surgeons, Drs E. Watson, Dewar, G. H. B. Macleod, George Buchanan, and Morton. To out-patients, Drs Dunlop, Patterson, R. Watson, Smart, and Cameron. Pathologist, Dr Joseph Coats. Superintendent, Dr M. Thomas.

Western Infirmary. This Hospital contains Beds for Medical and Surgical patients, with Wards for Skin Diseases and Diseases of Women. Physicians, W. T. Gardiner, M.D., T. M'Call Anderson, M.D., James Finlayson, M.D. Diseases of Women, W. Leishman, M.D. Surgeons, George H. B. Macleod, M.D., George Buchanan, M.D., A. Paterson, M.D. Dispensary Physicians, Gavin P. Tennent, M.D., Joseph Coats, M.D., D. C. M'Vail, M.B. Dispensary Surgeons, James G. Lyon, M.D., Wm. Jas. Fleming, M.B., D. N. Knox, M.B. Pathologist, Joseph Coats, M.D. Medical Superintendent, J. H. Lilly. Lady Superintendent, Miss E. Clyde. The hour of visit is 9 a.m. Operating days, Wednesday and Saturday. Clinical lectures are given on Tuesdays and Fridays. The Dispensary for out-patients is open daily at 2 p.m.

Lock Hospital. 81 Beds. Medical Officers, Drs James Dunlop, H. C. Cameron, and A. Paterson. In-patients, 520.

Lying-in Hospital and Dispensary. 24 Beds; in-patients, 360; out-patients, 700. Physician-Accoucheurs, Drs J. G. Wilson and R. D. Tannahill. Assistant-Physicians, Drs R. T. Paton, G. Miller, H. Miller, and M. Hunter.

University Lying-in Hospital, 152 Wellington Street. Medical Officers, Professor Leishman, Physician *ex officio*. Physicians, Drs John Wilson, Gavin P. Tennant, Murdoch Cameron. Dispensary for the Diseases of Women, on Mondays, Wednesdays, and Fridays, at 12 o'clock noon.

Royal Asylum for the Insane. About 680 patients. Physician-Superintendent, Dr A. Macintosh. Open to Students on payment of a small fee.

Eye Infirmary. 24 Beds; 132 in-patients; 3139 out-patients annually. Physician, * * * Consulting Surgeon, Dr G. Buchanan. Surgeons, Thomas Reid, M.D., and H. C. Cameron, M.D. Assistant Surgeons, Matthew Charteris, M.D., R. Watson, M.D.

Ear Dispensary. About 400 patients annually. Surgeon, Dr Dewar. Open on Tuesdays, Thursdays, and Saturdays, at 3 p.m.

Dispensary for Skin Diseases. About 1400 patients. Physician, Dr M'Call Anderson. Practical Courses in Diseases of the Skin and Ear, during May, June, and July. The Dispensary is open on Mondays and Wednesdays at 4 p.m., and on Tuesdays for Diseases of the Ear at the same hour.

Ophthalmic Institution. Consulting Physician, Dr Charles Ritchie. Surgeon, Professor Macleod. Acting Surgeons, Drs J. R. Wolfe and R. Bell. Assistant Surgeon, Dr Nairne. Open daily from 1 to 3 p.m. A Course of Lectures and Clinical Instruction during the winter and summer months.

Glasgow Dispensary for Diseases of the Ear, 241 Buchanan Street. During the Summer Session a Course of Lectures on Aural Surgery, and Practical Instruction in the Treatment of Ear Disease, is given to the Students attending the Clinique. Average number of cases treated, 800 annually. Surgeon and Lecturer, James Patterson Cassells, M.D., M.R.C.S. Lond.

The Hunterian Museum is open to Students of Medicine, for purposes of study, on purchase of the printed catalogue.

ABERDEEN.

Royal Infirmary. Upwards of 300 Beds. Visits daily at 12 o'clock. Physicians, Drs Smith-Shand, Beveridge, and Fraser.

Surgeons, Drs Kerr, Pirrie, A. Ogston, and Will. Ophthalmic Surgeon, Dr Davidson. Pathologist, Dr Rodger. Dental Surgeon, Mr Williamson.

General Dispensary, Lying-in and Vaccine Institution. 7000 patients annually. Open daily.

Lunatic Asylum. Above 300 patients. Clinical instruction is given during three months in the year.

Eye Institution, General Dispensary Buildings, Guestrow. Open three days in the week at 2.30 p.m. Clinical Instruction on Diseases of the Eye, and the use of the Ophthalmoscope. Average, 600 patients annually.

ARMY MEDICAL DEPARTMENT.

6 WHITEHALL YARD, S.W.

SCHEDULE OF QUALIFICATIONS NECESSARY FOR CANDIDATES DESIROUS OF OBTAINING COMMISSIONS IN THE ARMY MEDICAL DEPARTMENT, WITH EXTRACTS FROM THE REGULATIONS PRESCRIBED BY THE ROYAL WARRANT OF THE 28TH APRIL 1876 (CLAUSE 58, ARMY CIRCULARS, 1876), BY WHICH THE PAY, PROMOTION, AND RETIREMENT OF MEDICAL OFFICERS ARE REGULATED AND DETERMINED.

1. Every candidate desirous of presenting himself to compete for a commission in the Army Medical Department must be 21 years of age and not over 32 years at the date of commencement of the competitive examination. He must produce an extract from the Register of his birth, or, in default, a declaration, made before a magistrate by one of his parents or guardians, giving his exact age. He must also produce a recommendation from some person of standing in society—not a member of his own family—to the effect that he is of regular and steady habits, and likely in *every* respect to prove creditable to the Department if a commission be granted; and also a certificate of moral character from the parochial clergyman, if possible.

2. The candidate must sign a declaration upon honour that both his parents are of unmixed European blood, and that he labours under no mental or constitutional disease, nor has any hereditary tendency thereto, nor any imperfection or disability that can interfere with the efficient discharge of the duties of a medical officer in any climate: also that he does not hold, and has never held, any commission or appointment in the public services. His physical fitness will be determined by a Board of Medical Officers, who are required to certify that the candidate's vision is sufficiently good to enable him to perform any surgical operation without the aid of glasses. A moderate degree of myopia will not be considered a disqualification, provided it does not necessitate the use of glasses during the performance of operations, and that no organic disease of the eyes exists. The Board must also certify that he is free from organic or other disease, and from constitutional weakness, or tendency thereto, or other disability of any kind likely to unfit him for military service in any climate.

3. Certificates of age, registration of diplomas, etc., and of character, must accompany the declaration when signed and returned.

4. Candidates will be examined by the Examining Board in the following compulsory subjects, and the highest number of marks attainable will be distributed as follows:—*a*. Anatomy and Physiology, 1000; *b*. Surgery, 1000;

c. Medicine, including Therapeutics, the Diseases of Women and Children, 1000; *d.* Chemistry and Pharmacy, and a practical knowledge of drugs, 100. [*N.B.*—The examination in Medicine and Surgery will be in part practical, and will include operations on the dead body, the application of surgical apparatus, and the examination of Medical and Surgical patients at the bedside.] The eligibility of each candidate for the Army Medical Service will be determined by the result of the examinations in these subjects only. Examinations will also be held in the following voluntary subjects, for which the maximum number of marks will be—French and German (150 each), 300; Natural Sciences, 300. The knowledge of Modern Languages being considered of great importance, all intending competitors are urged to qualify in French and German. The Natural Sciences will include Comparative Anatomy, Zoology, Natural Philosophy, Physical Geography, and Botany, with special reference to Materia Medica. The number of marks gained in both the voluntary subjects will be added to the total number of marks obtained by those who shall have been found qualified for admission, and whose position on the list of successful competitors will thus be improved in proportion to their knowledge of modern languages and natural sciences.

5. After passing this examination, every candidate will be required to attend one entire course of practical instruction at the Army Medical School on—(1) Hygiene; (2) Clinical and Military Medicine; (3) Clinical and Military Surgery; (4) Pathology of Diseases and Injuries incident to Military Service.

The following Extracts from the Royal Warrant of 28th April 1876 (*Clause* 58, *Army Circulars*, 1876) *are republished for the information of Candidates for Commissions in the Army Medical Department.*

1. The daily rates of pay of the officers of the Army Medical Department shall be as follows:—Surgeon-General £2, after twenty-five years' service £2, 5s., after thirty years' service £2, 7s., after thirty-five years' service £2, 10s.; Deputy Surgeon-General £1, 10s., after twenty-five years' service £1, 12s., after thirty years' service £1, 15s., after thirty-five years' service £1, 17s.; Surgeon-Major, on appointment £1, after five years' service as such £1, 5s.; Surgeon, on appointment £250 a year, after ten years' service 17s 6d. daily. Charge pay: the principal medical officer of an army in the field, consisting of 10,000 men and upwards, £1 daily; of 5000 men and upwards, 15s. daily; of less than 5000, 10s. daily. Or, the principal medical officer of a colony where the number of commissioned officers and enlisted men is 1500 and upwards, 5s. daily.

2. The pay of officers shall be issued monthly in arrear.

3. The relative rank of the officers of the Army Medical Department shall be as follows:—I. A Surgeon-General shall rank as Major-General, according to the date of his commission. II. A Deputy Surgeon-General shall rank as Colonel, according to the date of his commission. III. A Surgeon-Major shall rank as Major, according to the date of his commission; after twenty years' full-pay service as Surgeon and Surgeon-Major, he shall rank as Lieutenant-Colonel, but junior of the latter rank. IV. A Surgeon shall rank as Lieutenant, according to the date of his commission; and, after six years' full-pay service, as Captain according to the date of the completion of such service.

4. The relative rank of these officers shall regulate choice of quarters, rates of lodging-money, servants, fuel and light, or allowances in their stead, detention and prize-money, as well as allowances granted on account of wounds or injuries received in action, and pensions and allowances to widows and families.

5. Forage shall be granted to officers of the Army Medical Department for such number of horses as are necessarily kept by them for duty.

6. Admission to the Army Medical Department shall be by public competition.

7. Every candidate for appointment to the Army Medical Department shall possess two Diplomas or Licences, one to practise Medicine and the other Surgery in Great Britain or Ireland, and be registered under the Medical Act in force at the time of his appointment.

8. A successful candidate, who, having passed through a course of instruction at the Army Medical School at Netley, in Military Medicine, Surgery, Hygiene, and Pathology, shall have proved, after examination, that he possesses a competent knowledge of those subjects, shall receive a commission as Surgeon for a limited period of ten years' service on full pay. From the date of joining at Netley, and up to that of passing his final examination, a candidate shall receive 5s. a day.

9. On the completion of ten years' commissioned service, unless the Surgeon be specially selected for further employment in the Medical Department of our Army, or, if he be unwilling to continue to serve therein his services shall be dispensed with, and he shall be entitled to receive, in lieu of all pension or retirement, pension for wounds excepted, the sum of one thousand pounds.

10. A Surgeon of less than ten years' service, disqualified for duty by ill-health, certified by a Board of Medical Officers to have been contracted in and by the Service, may, at the discretion of our Secretary of State for War, be granted half-pay at a rate not exceeding 8s. a day if he have served five years or more, or 6s. a day if he have served less than five years, for a period not exceeding six months at one time.

11. At the expiration of that period of six months, if the Surgeon be able to resume his duties, he shall be entitled to complete his term of ten years' service. If he be unable to resume duty, as certified by a Board of Medical Officers, he shall be allowed, if he have not served five years, a further period of six months, without half-pay; at the expiration of which period, if still unable to resume duty, his services shall be dispensed with.

12. If the Surgeon have served five years on full-pay, and be unable to resume duty as certified by a Board of Medical Officers, his services shall be dispensed with, and he shall be entitled to receive, in lieu of all further pension or pay, pension for wounds excepted, a gratuity at one of the following rates, viz.:—If he shall have completed nine years' full-pay service, £800; if he shall have completed eight years' full-pay service, £700; if he shall have completed seven years' full-pay service, £600; if he shall have completed six years' full-pay service, £500; if he shall have completed five years' full-pay service, £400.

13. If a Surgeon be unable to complete his ten years' service from any cause other than wounds or ill-health, certified by a Board of Medical Officers to have been caused in and by the Service, or reduction of establishment, he shall be allowed not more than six months' leave without pay, after which, if unable to resume duty, his services shall be at once dispensed with, and he shall have no further claim on the Department.

14. If the services of an Officer be temporarily dispensed with in consequence of a reduction of establishment, he shall be granted the rates of half-pay fixed by Article 10 until there be an opportunity of re-employing him, or, if he have served five years, he may retire from the Service with a gratuity according to the rates specified in Article 12.

15. Every year it shall be competent for our Commander-in-Chief, on the recommendation of the Director-General of the Army Medical Department, to select, with the approval of our Secretary of State, a number of Surgeons not exceeding six, who shall be retained in the Service, and shall be promoted after twelve years' service on full-pay to the rank of Surgeon-Major.

16. All promotion from the rank of Surgeon-Major to that of Deputy Surgeon-General, and from the rank of Deputy Surgeon-General to that of Surgeon-General, shall be given for ability and merit upon the selection of our Commander-in-Chief, with the approval of our Secretary of State; and the grounds of such selection shall be stated to us in writing, and recorded in the Department. In all such cases the amount of foreign service shall be expressly stated.

17. A medical officer retiring after full-pay service of twenty-five years and upwards, may, if recommended for the same by the head of his Department, receive a step of honorary rank, but without any consequent increase of half-pay.

18. Good Service Pensions shall be awarded to the most meritorious officers of the Army Medical Department, under such regulations as shall be from time to time determined by us, with the advice of our Secretary of State.

19. Six of the most meritorious officers of the Army Medical Department shall be named our Honorary Physicians, and six our Honorary Surgeons.

20. Medical officers shall have a right to retire on half-pay after twenty years' service. Medical officers of the rank of Surgeon-Major or Surgeon shall be placed on the retired list at the age of fifty-five, and all Surgeons-General and Deputy Surgeons-General at the age of sixty years.

21. Our Secretary of State may, when he shall deem it fit, employ medical officers on the half-pay list in special situations at such rates of pay, in addition to half-pay, as he shall from time to time determine; but such officers shall vacate their appointments on attaining the age of sixty-five years.

22. A medical officer who, having voluntarily resigned his commission, has subsequently been permitted to re-enter the Department, shall not, except under very special circumstances to be approved by our Secretary of State, be allowed to reckon his former service.

Service on the West Coast of Africa.

23. Services of medical officers upon the West Coast of Africa shall be voluntary.

24. Each year or portion of a year shall be allowed to reckon double towards retirement or towards the gratuities fixed by Articles 9 and 12, but not towards increased pay, provided that the officer shall serve at least twelve months on the West Coast of Africa.

25. For each year's service on the Coast, a medical officer shall be entitled to a year's leave at home, and for every additional period beyond a year he shall have an equivalent extension of leave.

26. Officers who may volunteer for service on the West Coast of Africa shall receive double pay while actually serving on the Coast.

Non-Effective Pay.

27. A medical officer of more than ten years' service placed on half-pay by reduction of establishment, or on the report of a Medical Board in consequence of wounds or ill-health, caused in and by the discharge of his duties, or on account of age (under Article 20), shall be entitled to half-pay in accordance with the following daily rates:—Surgeon-General, after thirty years' service, £1, 17s. 6d.; twenty-five years, £1, 13s. 6d.; twenty years, £1, 10s. Deputy Surgeon-General, after thirty years, £1, 5s. 6d.; twenty-five years, £1, 2s. 6d.; twenty years, £1, 1s. Surgeon-Major, after twenty-five years, £1; twenty years, 16s. 6d.; fifteen years, 13s. 6d.; twelve years, 11s. Surgeons, after ten years, 10s.

28. The rate of half-pay awarded to officers retiring for their own convenience, after twenty years' service on full-pay, under Article 20, shall not exceed one-half of their full-pay at the time of retirement.

29. Every medical officer who shall retire after a service upon full-pay of twenty-five years, shall be granted a rate of half-pay equal to seven-tenths of the daily pay he may have been in receipt of when thus retiring on half-pay, provided he shall have served three years in his rank, or shall have served abroad for ten years in all ranks, or for five years with an army in the field. An officer of twenty-five years' full-pay service, whose service falls within neither of these conditions, shall be entitled to only seven-tenths of the daily pay he was in receipt of prior to his last promotion.

30. Medical officers of twenty years' full-pay service, placed temporarily on half-pay on account of ill-health, may, however, be allowed to retire on permanent half-pay at the rate fixed by Article 27, if after one year on half-pay he shall be reported by a Medical Board to be permanently unfit for further service.

31. In all matters not specially provided for in our present Warrant, the Officers of the Medical Department of our Army shall be subject to the General Regulations for the Departments of our Army. [*N.B.*—The rates of pay, including allowances, while serving in India, will range from 317 rupees (£31, 14s.) to 433 rupees (£43, 6s.) per month, according to length of service.

ARMY MEDICAL SCHOOL.

ROYAL VICTORIA HOSPITAL, NETLEY.

President of the Senate.—Sir William M. Muir, K.C.B., M.D., Director-General of the Army Medical Department.

Members of the Senate.—Sir J. Fayrer, M.D., K.C.S.I., Physician to the Indian Council; Sir Alexander Armstrong, M.D., K.C.B., F.R.S., Director-General Naval Medical Department; The Principal Medical Officer, Royal Victoria Hospital; Surgeon-General T. Longmore, C.B., Professor of Military Surgery; Surgeon-General W. C. Maclean, C.B., Professor of Military Medicine; William Aitken, M.D., F.R.S., Professor of Pathology; F. S. B. F. De Chaumont, M.D., F.R.C.S.E., Surgeon-Major, Professor of Military Hygiene; J. D. Macdonald, M.D., F.R.S., R.N., Professor of Naval Hygiene.

Assistant Professors.—Surgeon-Majors J. H. Porter, W. M. Webb, and F. H. Welch, F.R.C.S.L.

Candidates for Commissions in the Army, Navy, and in the Queen's Indian Service, proceed to Netley after passing the Examination at London. At Netley they attend the Medical and Surgical Practice of the Royal Victoria Hospital, and learn the system and arrangements of Military Hospitals. During four months they attend the lectures given by the Professors and Assistant-Professors, and go through a course of practical instruction in the Hygienic Laboratory and Microscopical Room. The lectures and practical instruction are intended to explain the specialities of Military Medical Practice, attention being directed to gunshot and other wounds, surgical arrangements in the field during action and sieges, means of transport, field hospitals, tropical diseases and their means of investigation, service in India and in the various colonies, the sanitary arrangements in peace and war, and the means of carrying out the sanitary regulations. Every opportunity is taken of practising operations on the dead body, and practical points of a like kind.

INDIAN MEDICAL SERVICE.

MEMORANDUM REGARDING THE POSITION OF MEDICAL OFFICERS TO BE APPOINTED TO HER MAJESTY'S INDIAN FORCES.

India Office, May 1876.

1. The regulations are those in force at the present time. They are subject to any alteration that may be determined on.

2. *Passage to India.*—Passage allowance to India on appointment will be given, or a passage provided. When passages are provided on board the Indian troop-ships, a charge for messing will be made at the rate laid down in the Royal Passage Warrant of 1865—viz., 3s. 6d. a day; but, when wine and beer are not included in the mess, and it is so stated on the messing certificate, the daily contribution required will be 2s. 6d. only.

3. All Surgeons who shall neglect or refuse to proceed to India under the orders of the Secretary of State for India within two months from the date of leaving Netley, will be considered as having forfeited their appointment, unless special circumstances shall justify a departure from this regulation.

4. *Pay previous to Embarkation.*—Pay at the rate of 10s. a day will be allowed from date of passing final examination at the Army Medical School, until date of embarkation when a passage is provided, or for a period of two months when the Surgeon is permitted to make his own arrangements for passage. An advance of two months' pay will also be made on embarkation.

5. *Grades and Relative Rank.*—The grades of Medical Officers in the Indian Military Forces are four in number, viz. :—

1. Surgeon-General, ranking as Brigadier-General, according to the date of his commission; if with an army in the field, or after three years' service in India as Surgeon-General, as a Major-General, from the date of his joining such army in the field, or according to the date of the completion of such service.
2. Deputy Surgeon-General, as Lieutenant-Colonel according to the date of his commission; and after five years' service as Deputy Surgeon-General, as Colonel according to the date of the completion of such service.
3. Surgeon-Major, as Major according to the date of his commission; and after twenty years' service as Surgeon and Surgeon-Major, as Lieutenant-Colonel, but junior of that rank except for choice of quarters.
4. Surgeon, as Lieutenant according to the date of his commission; and after six years' service as Captain according to the date of the completion of such service.

6. *Promotion.*—A Surgeon is promoted to Surgeon-Major on completion of twelve years' service from date of first commission, subject to his passing the prescribed examination.

7. In cases, however, of emergency, or when the good of the service renders such alteration desirable, it is competent for the Secretary of State for India, on the recommendation of the Viceroy and Governor-General of India in Council, to shorten the period of service above mentioned, in such manner as he shall deem fit and expedient.

8. The examination for promotion may be taken at any time after the Surgeon has served nine or more years.

9. When Surgeons have served the requisite time, they will be examined in the following manner :—

A series of printed questions prepared by an examining board, consisting of the Principal of the Medical College and any two or more of the professors he may associate with himself for the purpose, will be sealed and sent by the Surgeon-General to the principal medical officers of stations where Surgeons may be eligible for examination. It will be the duty of the principal medical officer of the station to deliver the sealed questions to the Surgeons, and to see that they are answered without the assistance of books, notes, or communication with any other person. The answers are to be signed and delivered, sealed, to the Principal Medical Officer, who is to send them, unopened, to the Surgeon-General, together with a declaration from the Surgeon himself, or certificate from a superior medical officer, if there is one, that he has availed himself of every opportunity of practising surgical operations on the dead body.

10. The Surgeon is also required to transmit, together with his answers to the Surgeon-General, a medico-topographical account of the station where he may happen to be at the time, or of some other station where he may have been resident sufficiently long to enable him to collect the necessary information for such a report. Failing this, he will send a medico-statistical report of his charge for a period of at least twelve months.

11. If the examining board is satisfied with the replies to the questions, and the Surgeon-General is satisfied with the certificates and with the medico-topographical or statistical report, the Surgeon will be held qualified for promotion.

12. All promotion from the rank of Surgeon-Major to that of Deputy Surgeon-General, and from the rank of Deputy Surgeon-General to that of Surgeon-General, is given by selection for ability and merit.

13. *Tenure of Office in Administrative Grades.*—The tenure of office of Surgeons-General and Deputy Surgeons-General is limited to five years.

14. Deputy Surgeons-General, if not disqualified by age, are eligible either for employment for a second tour of duty in the same grade, or for employment in the higher grade of Surgeon-General by promotion thereto.

15. *Pay and Allowances when in India.*— Officers who may hereafter be appointed to the Indian Medical Service will receive pay in India according to the following scale :—

Rank.	Years' Service.	Pay and Allowances per Mensem.		
		R.	A.	P.
Surgeon-Major . .	25	888	12	0
" . .	20	852	3	7
" . .	15	677	6	11
" . .	12	640	14	6
Surgeon . . .	10	410	9	5
" . . .	6	392	5	2
" . . .	5	304	14	2
" . . .	under 5	286	10	0

16. On first appointment they will only come into receipt of Indian pay and allowances from the date of their arrival within the limits of the Presidency to which they have been gazetted. When provided with passages on the troop-ships, they draw Indian pay and allowances from date of disembarkation at Bombay.

17. The monthly salaries of the principal administrative and military appointments are fixed at the following consolidated sums :—Surgeon-General, Bengal, Rs. 2700; Madras, Rs. 2500; Bombay, Rs. 2500; Deputy Surgeon-General, Rs. 1800; Surgeon-Major, of twenty years' service and upwards, in charge of Native regiments, Rs. 1000, with Rs. 90 horse allowance in Cavalry regiments; Surgeon-Major in charge of Native regiments, Rs. 800, with Rs. 90 horse allowance in Cavalry regiments; Surgeon, above five years' full-pay service, in charge of Native regiments, Rs. 600, with Rs. 60 horse allowance in Cavalry regiments; Surgeon, under five years' full pay service, in charge of Native regiments, Rs. 450, with Rs. 60 horse allowance in Cavalry regiments.

18. The salaries of other medical appointments in the Civil and Military Departments are consolidated, and vary from Rs. 1800 to Rs. 400 per mensem.

19. Qualified officers of the Medical Service are also eligible for appointments in the Assay Department. The salaries of these appointments are from Rs. 600 to Rs. 2250 per mensem.

20. A medical officer will, however employed, be restricted to the rate of pay laid down in para. 15, until he shall have passed the examination in Hindustani, known as the "Lower Standard."

21. Surgeons-General and Deputy Surgeons-General, on vacating office at the expiration of the five years' tour of duty, will be permitted to draw *in India* respectively an unemployed salary of Rs. 1200 per mensem in the former, and Rs. 900 in the latter case, for a period of six months from the date of their vacating office, after which they will be placed while unemployed on the following scale of pay :—Surgeon-General, after thirty years' service on full-pay, £2, 5s.; after twenty-five years' service on full-pay, £2, 5s.; after twenty years' service on full-pay, or on promotion should this period of service not be completed, £2; Deputy Surgeon-General, after thirty years' service on full-pay, £1, 14s.; after twenty-five years' service on full-pay, £1, 10s.; after twenty years' service on full-pay, or on promotion should this period of service not be completed, £1, 8s.

22. *Furloughs.*—An officer will be eligible for one year's furlough on the completion of five years' actual service in India, and for an additional year after each subsequent five years' service.

23. While on furlough an officer will receive half the emolument of his office.

24. No absentee shall draw more than £1000 or less than £250 per annum.

25. Upon certificate of a Medical Board, an officer not entitled to furlough, if he has served not less than two years in India, may receive it for any period not exceeding two years.

26. Surgeons under six years' service, and in receipt of Indian allowances as subalterns, on returning to England on sick certificate receive passage allowance.

27. *Retiring Pensions.*—Officers of the Indian Medical Service will be allowed to retire on the following scale of pension, on completion of the required periods of service:—After thirty years' service in India, £550; after twenty-seven years' service in India, £426; after twenty-four years' service in India, £365; after twenty-one years' service in India, £292; after seventeen years' service in India, £220.

28. Time of service for pension will reckon from date of arrival in India. The period of residence at the Army Medical School will reckon as service for the above pension, except in the cases of officers who have gone through the course at Netley as candidates for the British Army or Navy Medical Service.

29. A Surgeon-General after five years' active employment in India in that grade, will be entitled to retire upon a pension of £350 per annum, in addition to that to which he may be entitled under the above scale.

30. A Deputy Surgeon-General will, after five years' active employment in India in that grade, be entitled to retire upon a pension of £250 per annum, in addition to the pension to which he may be entitled under the above scale.

31. In each of the above cases stated in paras. 29 and 30, six months' absence on medical certificate will be allowed to count towards actual service in those grades.

32. A Surgeon-General or Deputy Surgeon-General who has completed his term of service and has reverted to British pay, may reside in Europe, at the same time qualifying for higher pension.

33. With a view to maintain the efficiency of the service, all medical officers of the rank of Surgeon-Major shall be placed on the Retired List when they shall have attained the age of fifty-five years, and all Surgeons-General and Deputy Surgeons-General when they shall have attained the age of sixty-five years. In any special case, where it would appear to be for the good of the service that the officer should continue in employment, he may be so continued, subject in each case to the sanction of the Secretary of State for India in Council.

34. A medical officer retiring after a service of twenty-five years and upwards may, if recommended for the same by the Government of his Presidency, receive a step of honorary rank, but without any consequent increase of pay.

35. Officers compelled to leave the service on account of ill-health, and not entitled to full-pay pension under present regulations, will be allowed the half-pay of their relative rank, as laid down in the Royal Warrant of 10th May 1873:—Surgeon-Major of twenty years' service, ranking with Lieutenant-Colonel, 11s. per day; Surgeon-Major, ranking with Major, 9s. 6d. per day; Surgeon, ranking with Captain, 7s. per day; Surgeon under six years' service, ranking with Lieutenant, 4s. per day; Surgeon under three years' service, ranking with Lieutenant, 2s. 6d. per day. Officers cannot retire *in India* on half-pay (No. 54, 28th February 1865).

36. *Wound Pensions.*—Medical officers are entitled to the same allowances granted to Her Majesty's Indian Military Forces on account of wounds and injuries received in action as combatant officers holding the same relative rank.

37. *Family Pensions.*—The claims to pension of widows and families of medical officers shall be treated under the provisions of such Royal Warrant regulating the grant of pensions to the widows and families of British officers as may be in force at the time being. (The Royal Warrant of 27th December 1870 is the one now in force.)

38. The widows and families of medical officers are also entitled to pensions from the Indian Service Family Pension Fund, to which all Surgeons must, as a condition of their appointment, subscribe from the date of their arrival in India.

NAVY MEDICAL DEPARTMENT.

Admiralty, 9 New Street, Spring Gardens, London, S.W.

REGULATIONS RELATIVE TO THE EXAMINATION OF CANDIDATES FOR COMMISSIONS IN THE MEDICAL SERVICE OF THE ROYAL NAVY.

Candidates for admission to the Naval Medical Service must subscribe and send to the Medical Department, Admiralty, proofs of their qualifications, etc., similar to those required by the Army Medical Department. The regulations and subjects for examination are also similar.

After passing the examination, every candidate will be required to attend one entire course of practical instruction in the Medical School at Netley, on —(1) Hygiene; (2) Clinical and Naval and Military Medicine; (3) Clinical and Naval and Military Surgery; (4) Pathology of Diseases and Injuries incidental to Naval and Military Service.

At its conclusion, the candidate will be required to pass an examination on the subjects taught in the School. If he give satisfactory evidence of being qualified for the practical duties of a Naval Medical Officer, he will be eligible for a commission as Surgeon.

During the period of his residence at the Netley Medical School, each candidate will receive an allowance of 5s. per diem with quarters, or 7s. per diem without quarters, to cover all cost of maintenance; and he will be required to provide himself with uniform—viz., the regulation undress uniform of a Surgeon, but without the sword.

The full and half pay of Naval Medical Officers is in accordance with the following scale:—Full-pay: Inspector-General of Hospitals and Fleets—On promotion or under twenty-five years' service, £2, 5s.; ditto or above twenty-five years' service, £2, 6s.; and for each additional year of service 1s. a day more until the maximum is reached—namely, £2, 10s. Deputy Inspector-General of Hospitals and Fleets—On promotion or under twenty-two years' service, £1, 11s.; ditto or above twenty-two years' service, £1, 12s.; and for each additional year of service 1s. a day more until the maximum is reached—namely, £1, 18s. Fleet Surgeon—On promotion or under twenty years' service, £1, 3s.; ditto or above twenty years' service, £1, 4s.; and for each additional year of service 1s. a day more until the maximum is reached—namely, £1, 10s. Staff Surgeon—On promotion or under fourteen years' service, 18s.; ditto or under seventeen years' service, £1; and for each additional year of service 1s. a day more until the maximum is reached—namely, £1, 2s. Surgeon —Under five years' service, 11s.; under eight years' service, 12s. 6d.; under eleven years' service, 14s.; under fourteen years' service, provided he passed his examination for Staff Surgeon while under ten years' service, 15s. 6d.; above fourteen years' service, ditto, 17s. Half-pay: Surgeon —Under five years' service, 6s.; under eight years' service, 8s.; under eleven years' service, 10s.; above eleven years' service, provided he passed his examination for Staff Surgeon while under ten years' service, 11s. Staff Surgeon —On promotion or under fourteen years' service, 11s.; ditto or under seventeen years' service, 13s.; ditto or above seventeen years' service, 14s. Fleet Surgeon—On promotion or under twenty years' service, 16s.; ditto or above twenty years' service, 16s. 6d.; and for each additional year of service 6d. a day more until the maximum is reached—namely, 18s. 6d. Deputy Inspector-General of Hospitals and Fleets—On promotion or under twenty-two years' service, £1, 1s.; ditto or above twenty-two years' service, £1, 2s.; and for each additional year of service 1s. a day more until the maximum is reached—namely, £1, 7s. Inspector-General of Hospitals and Fleets—On promotion or under twenty-five years' service, £1, 11s.; ditto or above twenty five years' service, £1, 12s.; and for each additional year of service 1s. a day more until the maximum is reached—namely, £1, 18s.

PRELIMINARY EXAMINATIONS for the DIPLOMAS of the ROYAL COLLEGES of PHYSICIANS and SURGEONS of EDINBURGH, during the Year 1876–77.

I. The *Preliminary Examination* in *General Education* for the Double Qualification in Medicine and in Surgery conferred conjointly by the Royal Colleges of Physicians and Surgeons, and also for the separate Diploma of each College, for 1876–77, will embrace the following subjects:—

1. *English Language*, including Grammar and Composition.
2. *Arithmetic*, including Vulgar and Decimal Fractions.
3. *Algebra*, including Simple Equations.
4. *Geometry;* First Two Books of Euclid.
5. *Latin;* Cæsar de Bello Gallico, Book IV., Æneid of Virgil, Book VIII.
6. One of the following subjects at the option of the candidate: (1.) *Greek;* (2.) *French;* (3.) *German;* (4.) *Natural Philosophy*, including Mechanics, Hydrostatics, and Pneumatics.

II. In *Latin*, besides translation from either of the books prescribed at the option of the candidate, the examination will include grammar, translation of a passage from an unprescribed author, and translation of a passage from English into Latin, the more difficult words being supplied.

In *Greek*, the books prescribed are, Herodotus' History, Book I., and Homer's Iliad, Book II. Besides translation from both these, parsing, derivation of English words from Greek, and translation of a passage from English into Greek are required.

In *French*, the book prescribed is Molière, Le Malade Imaginaire. Parsing and translation from English into French are also required.

In *German*, the book prescribed is Schiller's Wilhelm Tell. Parsing and translation from English into German are also required.

Natural Philosophy, as defined above, corresponds to *Mechanics*, in the preliminary examination of the University of Edinburgh.

III. The examinations will be held on the following days, beginning each day at twelve o'clock:—Tuesday, 17th October, and Wednesday, 18th October, 1876; Tuesday, 17th April, and Wednesday, 18th April, 1877; and Saturday 21st July, and Monday, 23d July, 1877. On each occasion the subjects of the first day's examination will consist of English, Latin, and Geometry; and those of the second day, of Arithmetic, Algebra, and the optional subjects.

Candidates are required to give in their names to the officer of either College not less than two days prior to the day of examination.

Each candidate shall pay a fee of ten shillings previous to the examination. In the event of the candidate being unsuccessful, he shall be allowed to appear again for examination without paying a fee.

IV. The examinations will be conducted according to the following regulations:—

1. The competence of the candidate will be ascertained by means of written exercises. Candidates whose success amounts to a certain minimum will be admitted.

2. Each candidate must bring with him a card having his name, place of birth, and an address that will find him by post distinctly written on it.

3. The exercises on each of the subjects must, in every case, be written on separate papers; and the candidate must attach his signature and his address to each sheet of his written paper before giving it in to those who superintend the examination.

4. Books must not be employed, nor may assistance be given by one candidate to another, during the examination. Those who violate this necessary rule shall forfeit, for the season, the right of being examined.

5. The decision of the examiners will be intimated to each candidate as soon as possible. Those who pass the examination will receive certificates to that effect. In the case of those who are successful in part of the examination only,

the subjects in which they have passed will be recorded, and they will not be again examined in the branch or branches in which they have been successful.

V. A certificate of having passed all the required subjects of the above examination, entitles the possessor, on commencing medical study, to be registered as a Medical Student in the form required by the regulations of the General Medical Council, and, provided the candidate passes in three books of Euclid, is also admitted *pro tanto* by the Medical Faculty of the University of Edinburgh as an equivalent for the corresponding subjects of their preliminary examination for intending Graduates in Medicine.

A list of Examining Boards in the United Kingdom and in the Colonies, whose certificate is received by the Royal Colleges, on the recommendation of the General Medical Council, as equivalent to the above, will be found in the Appendix to the Regulations of the Colleges.

H. D. LITTLEJOHN, *President Royal College of Surgeons.*
ALEX. KEILLER, *President Royal College of Physicians.*

EDINBURGH, *July* 1876.

Frequent inquiries having been made as to the exact nature of the Preliminary Examination for the Diplomas of the Royal Colleges of Physicians and Surgeons of Edinburgh, the Secretaries have supplied the following papers, which were given out at the examinations in 1876.

FIRST DAY.—COMPULSORY.

ENGLISH.

The candidate is required:—

1. To write a passage dictated by the examiner, with strict attention to spelling and punctuation.

2. To give the meaning and derivation of at least eight of the following words:—

Interest, Circumstance, Possibility, Demonstration, Disciple, Fidelity, Interposition, Infallible, Intelligence, Description, Unprofitable, Gradually.

3. To give a grammatical analysis of the following sentence:—

"So, of his gentleness,
Knowing I loved my books, he furnished me,
From my own library, with volumes that
I prize above my dukedom."

4. To write a short essay on either of the two following subjects, viz.:—
"Boat racing," or "International Exhibitions."
[The essay need not exceed a folio page.]

GEOMETRY.

Euclid, Books 1 *and* 2.

1. The angles at the base of an isoceles triangle are equal, and if the equal sides be produced, the angles upon the other side of the base are equal.

2. To construct a triangle of which the sides shall be equal to three given straight lines.

Show where, in the construction, the demand is made that any two of these lines must be the greater than the third.

3. The complements of the parallelograms about the diagonal of any parallelogram are equal to one another.

Prove also any converse.

4. If a straight line be bisected and produced to any point, the rectangle contained by the whole line thus produced, and the part of it produced, together with the square of half the line bisected, is equal to the square of the line made up of the half and the part produced.

5. To divide a given straight line into two parts, so that the rectangle contained by the whole and one of the parts may be equal to the square of the other part.

If the line be 10 feet long, what are the parts?

Euclid, Book 3.

1. To find the centre of a given circle. Prove that the line which joins the middle points of two parallel chords passes through the centre of the circle.

2. If a straight line touch a circle, the straight line drawn from the centre to the point of contact is perpendicular to the line which touches the circle.

3. If from any point without a circle two straight lines be drawn, one of which cuts the circle, and the other touches it, the rectangle contained by the whole line which cuts the circle and the part of it without the circle, is equal to the square of the line which touches it.

LATIN.

I.

Translate:—

Caesar, etsi idem, quod superioribus diebus acciderat, fore videbat, ut, si essent hostes pulsi, celeritate periculum effugerent; tamen, nactus equites circiter xxx, quos Commius, Atrebas, de quo ante dictum est, secum transportaverat, legiones in acie pro castris constituit. Commisso proelio, diutius nostrorum militum impetum hostes ferre non potuerunt, ac terga verterunt: quos tanto spatio secuti, quantum cursu et viribus efficere potuerunt, complures ex iis occiderunt; deinde, omnibus longe lateque afflictis, incensisque, se in castra receperunt.

Parse *idem*. Parse *acciderat*. Parse *pulsi*. Parse *celeritate;* compare the adjective from which it is derived; also compare the adverb signifying swiftly. Parse *nactus;* give the third person singular of the imperfect indicative and imperfect subjunctive; also of the future present indicative and of the present subjunctive, and decline these tenses. Compare *longe* and *late*.

Numerical value, 50.

II.

O! mihi praeteritos referat si Jupiter annos;
Qualis eram, quum primam aciem Praeneste sub ipsa
Stravi, scutorumque incendi victor acervos,
Et regem hac Herilum dextra sub Tartara misi;
Nascenti cui tris animas Feronia mater,
Horrendum dictu! dederat, terna arma movenda;
Ter leto sternendus erat; cui tunc tamen omnis
Abstulit haec animas dextra, et totidem exuit armis:
Non ego nunc dulci amplexu divellerer usquam,
Nate, tuo; neque finitimus Mezentius usquam,
Huic capiti insultans, tot ferro saeva dedisset
Funera, tam multis viduasset civibus urbem.

Parse *referat*. Parse *stravi;* give the first person plural of the present indicative, of the pluperfect indicative, and of the imperfect subjunctive. Parse *dextra;* what word is understood after it? Parse *dederat*. Parse *divellerer*. Parse *viduasset*. Numerical value, 50.

III.—*Passage from an unprescribed Author.*

Neque tamen exercitus populi Romani laetam aut incruentam victoriam adeptus: nam strenuissimus quisque aut occiderat in proelio, aut gravitur vulneratus discesserat. Multi autum, qui de castris visundi, aut spoliandi, gratia processerant, volventes hostilia cadavera, amicum alii, pars hospitem, aut cognatum, reperiebant: fuere item, qui inimicos suos cognoscerent. Ita varie per omnem exercitum laetitia, moeror, luctus atque gaudia agitabantur.

Parse *adeptus*. Parse *occiderat*. Parse *fuere item, qui inimicos suos cognoscerent*. Numerical value, 50.

IV.—*Render in correct Latin the following Passage:—*

When Titus one day recollected, at supper, that he had done nothing for any one that day, he said, O friends! to-day I have lost a day. He was a prince of so much easiness and generosity, that he denied no man anything; and when he was blamed for it by his friends, he replied, that no man ought to go away sorrowing from an emperor.

Cum Titus quidam dies recordor, in coena, sui nihil quisquam praesto ille dies, dico, O amicus! hodie dies perdo. Sum princeps tantus facilitas et liberalitas, ut nullus quisquam nego; et cum ab amicus reprehendo, respondeo, nullus tristis debeo ab imperator discedo.

Numerical value, 50.

In order to pass, the candidate must have done one or other, but not both, of Nos. I. and II. He must also have done Nos. III. and IV.; and must have obtained in all 100 marks.

SECOND DAY.—COMPULSORY.

ARITHMETIC.

1. £100 are laid out in purchasing articles at 17s. 6d. a dozen, which are afterwards sold at 35s. a score. Required the gain on the transaction.
2. Find the cost of 3 qrs. 17 lbs. 13 oz. at $6\frac{1}{2}$d. per oz.
3. If $15\frac{1}{7}$ yards cost $17\frac{1}{8}$s., what is the cost of $\frac{3}{5}$ of a piece which measures $29\frac{1}{7}$ yards?
4. Reduce the following to their simplest forms:

$$(1.)\ \frac{4}{7}+\frac{2}{21}+\frac{5}{6}.$$

$$(2.)\ \frac{4}{7}\times\frac{2}{21}\div\frac{5}{6}.$$

$$(4.)\ \left(\frac{4}{7}+\frac{2}{21}\right)\div\frac{5}{6}.$$

5. A room, 22 feet long, requires $58\frac{2}{3}$ yards of carpet $\frac{3}{4}$ of a yard broad to cover it. Required the breadth of the room.
6. Find the simple interest of £517 for $2\frac{1}{2}$ years at $3\frac{1}{2}$ per cent.
7. The *hectare* is a square whose side is 100 mètres. Express the hectare in acres—the mètre being 39·37 inches.
8. The pound sterling is worth in Canada 4 dollars 75 cents. Reduce 1000 dollars to pounds.

N.B.—The working of each question, as well as the answer, must be given in full.

ALGEBRA.

1. Add together—

$$\tfrac{1}{2}(2a-3b+4c),\ \tfrac{1}{3}(2b-3a+4c),\ \text{and}\ \tfrac{1}{4}(2c-3b+4a).$$

2. Divide $a^4+8b^2x^2(a^2-2)+16b^4x^4$ by $a^2+4bx+4b^2x^2$.
If $a=1$, the quotient is a complete square; give its square root.
3. Resolve into factors:—

(1.) $(3x-2)^2-(x-3)^2$.
(2.) $(x+y)^2+2(x^2+xy)-3(x^2-y^2)$.
(3.) $(1+ax)^2-(a+x)^2$.

4. A cistern would be filled by the influx pipe in 15 minutes, and emptied by the efflux pipe in 17 minutes. How long will it take to fill the cistern when both pipes are open together?
5. Solve the following equations:—

$$(1.)\ \frac{1}{4x}+\frac{1}{7x}=11.$$

$$(2.)\ \frac{4x-2}{3}+4y-3=19.$$

$$\frac{8y-6}{13}+9x-7=40.$$

$$(3.)\ \sqrt{(30+x)}+\sqrt{(10+x)}=10.$$

6. A room is twice as long as it is broad; if you increase the length of the room by 4 feet and its breadth by 2, the area of the floor will be increased by 152 feet. Required the dimensions of the room.

7. Find the least common multiple of $2x^2 + x - 6$ and $4x^2 - 4x - 3$.

N.B.—The working of each question, as well as the answer, must be given in full.

Second Day.—Optional.

GREEK.

Translate:—

I. (*Herodotus, Book I.*)

Ἔχοντι δέ οἱ τοῦτον τὸν πόνον πέμψασα ἡ Τόμυρις κήρυκα ἔλεγε τάδε· Ὦ βασιλεῦ Μήδων, παῦσαι σπεύδων τὰ σπεύδεις· οὐ γὰρ ἂν εἰδείης εἴ τοι ἐς καιρὸν ἔσται ταῦτα τελεύμενα· παυσάμενος δὲ βασίλευε τῶν σεωυτοῦ, καὶ ἡμέας ἀνέχευ ὁρέων ἄρχοντας τῶνπερ ἄρχομεν. οὔκων ἐθελήσεις ὑποθήκησι τῇσίδε χρέεσθαι, ἀλλὰ πάντα μᾶλλον ἢ δι' ἡσυχίης εἶναι. σὺ δὲ εἰ μεγάλως προθυμέαι Μασσαγετέων πειρηθῆναι, φέρε, μοχθον μὲν τὸν ἔχεις ζευγνὺς τὸν ποταμὸν, ἄφες, σὺ δὲ, ἡμέων ἀναχωρησάντων ἀπὸ τοῦ ποταμοῦ τριῶν ἡμερέων ὁδὸν, διάβαινε ἐς τὴν ἡμετέρην. εἰ δ' ἡμέας βούλεαι ἐσδέξασθαι μᾶλλον ἐς τὴν ὑμετέρην, σὺ τωὐτὸ ποίεε. Ταῦτα δὲ ἀκούσας ὁ Κῦρος συνεκάλεσε Περσέων τοὺς πρώτους, συναγείρας δὲ τούτους ἐς μέσον σφι προετίθεε τὸ πρῆγμα, συμβουλευόμενος ὁκότερα ποιέῃ. τῶν δὲ κατὰ τωὐτο αἱ γνῶμαι συνεξέπιπτον, κελευόντων ἐσδέκεσθαι Τόμυρίν τε καὶ τὸν στρατὸν αὐτῆς ἐς τὴν χώρην.

Parse πέμψασα. Parse παῦσαι. Parse εἰδείης. Parse ὁρέων. Parse ὑποθήκησι,—give its derivation. Parse πειρηθῆναι. Parse ἄφες. Parse πρῆγμα,—give its derivation.

Numerical value, 50.

Translate:—

II. (*Homer, Ilias, Lib. II.*)

Ὃν δ' αὖ δήμου τ' ἄνδρα ἰδοι, βοόωντά τ' ἐφεύροι,
Τὸν σκήπτρῳ ἐλάσασκεν, ὁμοκλήσασκέ τε μύθῳ·
Δαιμόνι, ἀτρεμας ἧσο, καὶ ἄλλων μῦθον ἄκουε,
Οἳ σέο φέρτεροί εἰσι· σὺ δ' ἀπτόλεμος καὶ ἄναλκις,
Οὔτε ποτ' ἐν πολέμῳ ἐναριθμιος, οὔτ' ἐνὶ βουλῇ.
Οὐ μέν πως πάντες βασιλεύσομεν ἐνθάδ' Ἀχαιοί·
Οὐκ ἀγαθὸν πολυκοιρανίη· εἷς κοίρανος ἔστω,
Εἷς βασιλεὺς, ᾧ ἔδωκε Κρόνου παῖς ἀγκυλομήτεω
Σκῆπτρόν τ' ἠδὲ θέμισας, ἵνα σφίσιν ἐυβασιλέυῃ.
Ὥς ὅγε κοιρανέων δίεπε στρατόν· οἱ δ' ἀγορήνδε
Αὖτις ἐπεσσεύοντο, νεῶν ἄπο καὶ κλισιάων,
Ἠχῇ· ὡς ὅτε κῦμα πολυφλοίσβοιο θαλάσσης
Αἰγιαλῷ μεγάλῳ βρέμεται, σμαραγεῖ δέ τε πόντος.
Ἄλλοι μέν ῥ' ἕζοντο, ἐρήτυθεν δὲ καθέδρας.

Parse ἐφεύροι. Parse ἧσο. Parse φέρτεροί,—compare it. Parse πολυκοιρανίη. Parse δίεπε. Decline κῦμα in the singular, dual, and plural. Compare μεγάλῳ.

Numerical value, 50.

III.

Translate into Greek the following passage:—

Diogenes having heard a certain one saying, "Life is an evil," said, "Life is not an evil, but to live evilly, that is an evil."—Numerical value, 50.

IV.

Derive the following words from the Greek:—

Episcopal, Metallurgy, Apocalypse, Genealogy, Prophet, Planet, Misanthrope, Mythology, Ethnology, Polynesia, Apostrophe, Anonymous, Synonymous, Hygrometer, Eulogy, Epitaph, Epidemic.—Numerical value, 50.

[To pass, the candidate must do all the four passages, and obtain 140 marks.]

GERMAN.

1. Translate into English :—

Mein lieber Herr und Ehewirth! Magst du
Ein redlich Wort von deinem Weib vernehmen?
Des edeln Ibergs Tochter rühm' ich mich,
Des vielerfahrnen Manns. Wir Schwestern sassen,
Die Wolle spinnend, in den langen Nächten,
Wenn bei dem Vater sich des Volkes Häupter
Versammelten, die Pergamente lasen
Der alten Kaiser und des Landes Wohl
Bedachten in vernünftigem Gespräch.
Aufmerkend hört' ich da manch kluges Wort,
Was der Berständ'ge denkt, der Gute wünscht,
Und still im Herzen hab' ich mir's bewahrt.
So höre denn und acht' auf meine Rede!
Denn, was dich presste, sieh, das wusst' ich längst.
—Dir grollt der Landvogt, möchte gern dir schaden,
Denn du bist ihm ein Hinderniss, dass sich
Der Schwyzer nicht dem neuen Fürstenhaus
Will unterwerfen, sondern treu und fest
Beim Reich beharren, wie die würdigen
Altvordern es gehalten und gethan.—
Ist's nicht so, Werner? Sag' es, wenn ich lüge!

2. Parse the following phrases, conjugating the verbs :—*Rühm' ich mich; möchte gern dir schaden; sag es wenn ich lüge!*

3. Give examples from the above passage of verbs with separable and inseparable prefixes. Under what circumstances is the separable prefix separated from the verb?

4. Translate into German :—

Emperor Otto the Great was feared in all districts (*Land*) of Germany, for he was severe, and without mildness. He wore (*tragen*) a beautiful red beard, (*Bart*), and what he swore by this beard, he made true and unavoidable (*unabwendlich*).

NATURAL PHILOSOPHY.

1. State and prove the fundamental property of the lever.

Two weights respectively of 5 and of 10 lbs. are hung at the extremities of a straight bar 1 foot long, supposed without weight, where must the fulcrum be placed so that there may be equilibrium?

If the smaller weight descend 1-100th of an inch, how much will the larger ascend?

2. A triangular table, supposed without weight, is supported at its three angles, A, B, C; a weight is placed on it at any point O. Prove that the pressures sustained by the three props at A, B, C are respectively as the areas of the triangles O B C, O C A, O A B.

If O be the centre of gravity of the triangle, prove that the pressures are equal.

3. What is the origin of the force of gravity at the earth's surface? How far will a stone fall by the action of gravity in three seconds?

4. How is the result of the last question affected by the size and weight of the falling body (1) in vacuo; (2) in the air? Give an experimental determination of the pressure of the atmosphere. A vessel contains a quantity of air which weighs eight grains, and exerts a pressure of 17 lbs. per square inch. If three more grains of air be pumped in, what will the pressure become?

5. Explain the law of motion according to which force acts on a body in motion. Apply it to determine the path which a rifle-ball describes.

6. Define specific gravity. A body weighs 10 lbs. in air, and $8\frac{1}{4}$ lbs. in water. Determine its specific gravity. What will the same body weigh in salt water, whose specific gravity is 1·025?

7. Describe the common pump.

Part Third.

PERISCOPE.

OPIUM.—(*a.*) *In Psychoses.*—An account of Nasse's experience of the treatment of psychoses by opium is given in the *Allgemeine Zeitschrift für Psychiatrie,* Bd. xxxii. Heft 3, 4. Nasse does not coincide in the general opinion that opium in large doses is only useful in melancholia and not in mania. Out of 70 melancholics only 6 were cured, while of 76 cases of mania 22 were cured. Fourteen cases of delusional insanity were so treated without benefit. Nasse condemns the administration of opium in the first few months of mania; but he regards it as beneficial in cases of chronic mania of from four to seven months' standing when the maniacal symptoms, with sleeplessness, excitability, emaciation, and anæmia, persist and threaten exhaustion, but in which there is no organic disease. In melancholia often, and in mania less frequently, temporary improvement took place, but ceased when the administration of the opium was discontinued. The treatment advocated consists in giving two grains of opium twice daily, and rapidly increasing the dose. The usual quantity given in the twenty-four hours was from four to eight grains, but this was sometimes greatly exceeded. When improvement in the symptoms was noticed the increase in the dosage was stopped. The treatment was continued from two to eight weeks or more. When it was intended to discontinue the opium the dose was gradually diminished. The following symptoms frequently presented themselves during this treatment:—Nausea and constipation, at first followed by diarrhœa, diminished pulse, itching and burning of the skin, decrease in the weight of the body. Nasse does not regard hyperæmia of the brain, organic cardiac disease, or atheroma as contra-indicating opium. He believes the beneficial results attending its administration to be due chiefly to its sleep-producing properties, to the narrowing of the vessels, and retardation of the circulation. He also ascribes to opium a tonic effect on the brain, and an indirect influence on nutrition.

(*b.*) *Opium Poisoning.*—In a discussion on opium poisoning at a recent meeting of the New York Medical Society, in which Dr Andrew H. Smith, Dr J. J. Reid, Dr Baylis, and others took part, the following points were specially noted:—The number of respirations is not always an index of the degree of narcosis. The narcotic influence is exerted partly by pressure on the brain from paralysis of the vaso-motor nerves, and partly by the direct influence of the drug on the cells of the brain. The effect of opium in contracting the pupil is due to its central action on the nerve-supply of the pupil; belladonna, on the other hand, acts on the periphery of the nerves. The administration of oxygen gas has proved of great service in

opium poisoning; it accelerates the capillary circulation, and probably aids in the destructive assimilation of the poison. A dose of atropia as an antidote larger than 1-40th to 1-30th of a grain hypodermically is attended with risk.

In a clinical lecture delivered by Professor H. C. Wood (*Phil. Med. Times*, 25th December 1875), on the subject of opium poisoning, he states that he does not regard opium and atropia as antagonistic, and that atropia should be employed in opium poisoning not as an antidote, but as a powerful stimulant to the respiratory centres. The effect of atropia on the number of the respirations, and not the dilatation of the pupils, should be our guide as to the amount to be given. In the third stage of poisoning—that of coma and exhaustion with profound stupor, rapid feeble pulse, distant and stertorous breathing, moist and cool skin, and contracted or dilated pupils—alcohol should be used with freedom to maintain the circulation, atropia being also employed for its cardiac as well as for its respiratory stimulant action. Artificial respiration should not be put off too long, and Dr Wood prefers Sylvester's plan.

Datura.—As regards the mydriatic action of daturine, the following are the conclusions arrived at by Dr Fano from a large number of cases:—With a solution of one part of daturine in 3000, dilatation of the pupil of a healthy eye is obtained in from twenty to twenty-five minutes. The action of daturine is as prompt as that of atropine, the solutions employed being of equal strength. If, in vasculo-plastic keratitis, accompanied by a non-dilatable state of the pupil, daturine be inefficacious in producing dilatation, atropine will also prove ineffective; but daturine sometimes produces dilatation when atropine has failed to do so. If a collyrium of daturine will not produce dilatation of the pupil in certain cases of vasculo-plastic keratitis in which the mydriatic effect of atropine is also not appreciable, the daturine nevertheless seems to exercise a special action over the vessels of the cornea, these diminishing in size under its influence; daturine collyria, therefore, are superior to atropine in certain cases of chronic and vasculo-plastic keratitis.—*Jl. d'Oculistique*, Sept. 1875.

Surgeon R. C. Sanders records two cases of datura poisoning, which are interesting from the fact that the post-mortem appearances in each case were exactly similar. The most marked venous congestion extended from the lips along the larynx and trachea to the bifurcations of the bronchial tubes. The congestion was uniform in its whole extent, but did not run down the œsophagus.—*Indian Medical Gazette*, 1st June 1875.

Local Treatment of Burns.—Of all local applications in the experience of the writer, iodoform, prepared with extract of conium and spermaceti ointment, with a small portion of carbolic acid, appears to meet the several indications best. This agent acts as a certain and most effective sedative on the painful and irritable exposed

surface, and at the same time as an antiseptic. It reduces irritation, inflammation, and suppuration when in excess, in a remarkable manner. It converts a most painful and irritable wound into one comparatively painless, with promptness. This remedy is also an excellent promotive of healthy action and of the healing process. I have experimented with iodoform ointment in these cases repeatedly, and always with the same pleasant result. The use of this preparation has another advantage: it renders the constant use of anodynes unnecessary. The following formula has been found the best:—℞ Iodoformi, ʒij.; Unguent. cetacei, ℥i.; Ext. conii, ʒiss.; Acid. carbol., x. gtt.—M. This ointment is spread twice daily on soft linen, and applied over the inflamed surface, and then enveloped in oiled silk. No other dressing is necessary. The only objection to the use of this remedy is its peculiar odour. In those cases of burns attended with great *dryness* of surface from destruction of vitality and want of exhalation, the wound, before being covered with the iodoform ointment, should be coated over with the common linimentum calcis. This affords a soft and moist dressing, which in nowise interferes with the action of the iodoform.—*Philadelphia Medical Times,* 22d July.

Dyspnœa from the dropping of a Molar Tooth into the Trachea.—Dr Van Giesen presented a specimen, viz., a molar tooth, with a history as follows:—A patient, who was recovering from typhoid fever, had been suddenly seized with dyspnœa. When the doctor arrived the man was recovering from the attack. On examination of the lungs and larynx, no sign or cause which would give rise to such a symptom could be found. The patient had recovered by the next morning, but the dyspnœa returned about an hour after the doctor's visit. Dr Van Giesen thought that a crumb of bread might have accidentally fallen into the trachea, but the patient's friends said that he had eaten no bread for some time. In the course of the day, while coughing violently, he expectorated a molar tooth. It was supposed that the tooth had been very loose, and had fallen through the chink of the glottis while the patient was asleep.—*Med. and Surg. Reporter.*

Conservative Surgery. By John W. Keating, M.D.—The following notes, which will speak for themselves, were sent me a few days ago by Dr Alexander J. Mullen, a prominent surgeon of St Louis. The case is certainly an extremely interesting one, and unique so far as I can judge.

"On the 5th of September 1856, I was called in haste to visit the family of Mr John Mayingo, living three miles west of Napoleon, Ripley County, Ind. I was informed that a child had had its hand chopped off. With amputating-case under my arm and with Gilpin speed I soon arrived, and found a little girl, about six years old, lying on a bed, her right arm tightly corded below the elbow, supported on a pillow, whilst a cold, blue, shrivelled

hand dangled from the string, held by a small portion of skin not an inch in width. Her appearance, as well as the quantity of blood scattered around, showed that much blood had been lost. Whilst an elder sister was chopping wood, she had attempted to gather chips from the block; the axe descended, striking the back of the arm about an inch above the wrist, cutting through both bones, dividing arteries, nerves, and tissue. The axe, on the radial side, cut into the block, leaving but a small portion of the integument on that side and on the under ulnar aspect. My first impulse was to form flaps and remove a portion of the bones, making the amputation complete. At that moment a large splaying-needle, sticking in the wood-work above the door, armed with a strong flax string, attracted my attention. The idea at once occurred to me to attach the hand firmly with strong sutures to the stump, let on the circulation, and trust to Providence for the result. The hand was firmly and with force pushed against the opposing surface, and two deep sutures, above and below, were tightly tied. The cord was removed from the arm, and the circulating medium allowed to go on its way rejoicing. No arteries were secured, the arterial blood being allowed to find its way as best it could in the apparently lifeless hand. The hand and arm were then fixed to a splint, and bladders of warm water applied. For a few hours there was a slight welling out of blood around the wound, trifling in quantity. No change was observed, either in appearance or temperature, until the fourth day, when the hand became puffy and the entire cuticle slipped off. I must confess that I felt like 'giving up the ship,' considering the efforts to save the hand a failure, and attributing the puffing to decomposition. But a few moments' reflection, after noticing the absence of odour emanating from the hand, assured me that it was not dead. On the fifth day a fungoid growth was observed sprouting from the entire line of the cut, purplish in colour, from which, upon the slightest touch, oozed a thin sanious fluid. The hand now assumed a rosy hue, and the temperature began to rise. I regret that I was not at that time possessed of a clinical thermometer; it would have been not only interesting, but instructive also, to have noticed the daily changes taking place until the circulation was reasonably established. On the ninth day, the soft ring of spongy granulations that wound around the arm was as large as a half-inch rope. Under gentle pressure, and the application of argent. nitrat., the granulations finally disappeared. The sutures were removed on the twelfth day, and the hand was saved. It was some two years before it became a useful member. I had the pleasure eventually of seeing that hand plying, with much grace, the needle."—*Philadelphia Medical Times*, 19th August.

Cupping and Ice in Acute Gastritis. By S. B. Chase, M.D., of Osage, Iowa.—Returning home Monday evening, 27th

March 1876, badly chilled from an extensive ride into the country, I ate a hearty supper, and went out to visit some patients in the city. Although I began to feel distress directly after eating, I was able to very nearly complete my calls before I was compelled to return, at 11 P.M. Being greatly fatigued, I retired, and immediately fell asleep, to awake in an hour with a terrible gastric pain in the splenic portion of the stomach. In half an hour I began to vomit its sour and acrid contents. I took an alkali and some lactopeptine, which neutralized the acidity, but did not check the vomiting or relieve the pain. This continuing to increase, I applied sinapisms freely over the epigastrium, and began the use of morph. sulph., with small doses of submur. hyd., dry, on the tongue. The vomiting partially abated, but the pain continued, compelling the free use of anodynes. Active counter-irritation was constantly maintained, and opium taken in large doses, with such a mitigation of the symptoms as gave a confident hope of relieving the congestion; yet, in defiance of the most energetic contra-efforts, it passed rapidly into inflammation. The usual treatment was employed, and vigorous exertions were made to allay the early-developed heat. As the stomach had rejected everything, an unsuccessful attempt was made to alleviate by cold externally. Thus the conflict raged until the next Monday, when the indications, to me, were that the struggle was most over, unless I could get immediate relief. The heat was so intense that small pieces of ice would be ejected with great force the instant swallowed, the water melted from them following in foam. At this stage, Dr Whitley, in whose care I was, summoned Dr Blackman, of West Mitchell, in consultation, who decided, as had Dr Whitley, that the only hope was *to force ice into my stomach, and compel its retention.* Dr Blackman then prepared large cups, so that, when ignited, a volume of flame streamed from them two to three feet. Then, like Pyrrhus in the palace of Priam, with a whirl he brought them down upon my swollen stomach. For an instant it almost seemed as though soul and body would separate, so great was the soreness, both external and internal; yet each application gave relief. Although accustomed to using cups, and seeing them used by others, I never before realized their wondrous power. After thus applying a number of them, they began to feed me with finely-shaven ice, literally gorging me, as our good grandames do turkeys for Christmas fattening. The desire to vomit seemed irresistible, yet to do so appeared impossible. The cupping and ice diet were continued an hour, changing the cups every ten to fifteen minutes, until my entire gastric region looked as though it had been the focus of a battering-ram. At the close of the first half-hour all inclination to vomit ceased. In three-quarters my stomach appeared saturated, and the melted ice began to trickle through the pylorus. An almost incredible amount of ice was taken during the following five days and nights, my stomach

craving and tolerating it. Near the close of the fifth day, I commenced to take water with the ice. Saturday morning I was so greatly relieved that I thought the danger past, when, without premonition, I sank suddenly into a cold sweat, which continued until Monday morning, very nearly taking what vitality remained. Although so grievous to endure, this had "a silver lining," as the heat and pain, which had continued "an abiding affliction," gradually passed away with the sweating. Tuesday the mucous membrane began to slough in my mouth, and extending into my stomach, appeared to slough deeply there, occasioning an intense, burning, stinging pain, which continued until Saturday. The ice had probably something to do with this. My mouth was terribly burned, my tongue deeply fissured, and the week a very distressing one. The following was more comfortable; but on Monday of the fifth week I was somewhat startled by strong indications of gastric ulceration and gangrene. This yielded to carbo ligni. The last week was much like the preceding, my tongue giving me the most discomfort; but little heat and pain remained in my stomach, as I did not vex it with anything, ice-water being all I attempted to take. On the thirty-fifth day I made the first successful attempt to take nourishment, every previous endeavour having given distress, the stomach not even tolerating gum-acacia water, or that of ulmi cort. A nourishing enema was given me the second week; but as it created nausea, it was not repeated, my continuing strength rendering it unnecessary. During the entire five weeks I did not take as much nutriment as one-third of a cup of milk would furnish, and this to my detriment. On the thirty-fourth day I felt the first symptoms of exhaustion. I think my vital energy would have supported me another week, yet I was very glad not to be compelled to try it. While I would have preferred to study the symptoms and treatment of this distressing and dangerous disease under other circumstances, yet to watch its progress and note its changes afforded me an interesting theme for reflection. After the second week I took little medicine. Circulation moderate most of the time, attributable doubtless to the nausea. Respiration rapid, necessitating a continued low temperature. I do not find this disease very satisfactorily treated in medical works. Dr Flint's is the best. I have now been "on my food" three weeks, and, contrary to my expectation, my stomach does duty well. I can, with caution, take toast and very nearly raw beef with satisfaction and impunity. Although anæmic, and feet and limbs much swollen, the present indications are that my "life's labour" is not yet done, though the outlook is a slow recovery.—*Philadelphia Medical and Surgical Reporter*, 17th June.

Mercurial Poisoning from Canned Meats.—At a recent meeting of the chemical section of the New York Academy of Sciences, Professor Falke stated that, on opening a can of cooked

corned beef, put up by a company in Chicago, he noticed some bright metallic globules, which proved to be metallic mercury. Beside these, a considerable quantity of combined mercury was present in the form of albuminate of mercury. How the poison came in the meat is a mystery; but a member suggested that, inasmuch as thermometers are employed to regulate the temperature when canning, the mercury may have come from a broken thermometer. It may be interesting to note that a case of poisoning has been reported in Boston from eating canned cooked corned beef. Another member of the Academy stated that he too suffered severely after eating two ounces, but whether from mercury he could not say. —*Philadelphia Medical and Surgical Reporter*, 10th June.

An Original Suicide. By W. W. Vinnedge, M.D.—On Saturday, the 10th day of June 1876, James A. Moon, a farmer, thirty-seven years of age, residing on the Wea Plains, nine miles west of Lafayette, left home and came to this city, and made every preparation to make his name notorious. On his arrival in the morning he registered his name at the Lahr House, and told the proprietor "he would like to have a *good* room shown him, as he would probably occupy it three or four days." A number of rooms were then shown to him before one was found suitable, it being No. 41, on the upper floor, immediately over the market space, and not accessible to view from any direction. While selecting the room, he remarked to the porter, "that he wanted a room as far away from the noise as possible, as he slept but little except in a quiet room, and not at all if troubled by noise." After selecting his room, he remarked, "Room 41 suits me first-rate." He then locked the door, left the house, and was not seen again until late in the afternoon.

On his second visit he brought a heavy trunk, which he charged the porters to carry right side up and with great care, as its contents would not permit "jostling." To see this order properly executed, he followed the men to his room, showing just where and how to place the trunk. He then again went down on the street, was shaved, visited a short time with two or three old soldier friends, returned to his room between eight and nine in the evening, and was not seen again alive. During the entire time of these preparations he was cheerful, laughing and talking familiarly and freely with his acquaintances, giving especial attention to army reminiscences. When the boy at the foundry, who drilled the holes in the pole of the broad-axe used in his destruction, and through the iron upright bars to which the broad-axe was attached by bolts and screws, asked him what he intended to make, he replied, "An instrument for making fruit-baskets."

The room that he selected at the hotel is twelve by fourteen feet, having but one window, which opens towards the west, and two doors, one in the south wall opening into an adjoining room, and

one in the east wall opening into the hall. The furniture of the room consisted of a bed, wash-stand, table, and the trunk which contained the instrument of death, and which, on account of its construction and *modus operandi*, has been called "the Moon guillotine." The essential parts of the instrument are a broad-axe and lever screwed at one end to the floor. The axe was secured to this lever, seven feet in length, the lower two-thirds of which consisted of wood, by upright pieces of bar-iron fastened with bolts and screws. The lever was composed of three separate parts, for convenience in transportation, firmly bolted together, the widened end being attached to the floor by means of hinges to prevent any possible lateral motion. At the other end of the lever, the iron bars to which the axe was attached were very heavy, in order to give the machine great effectiveness when put in motion. The axe being elevated, was sustained at the proper angle for falling the greatest distance possible by means of a double cord attached to the free end of the lever, and to a small hook in a bracket, which was securely fastened to the wood on the side of the window, about five feet from the floor. On this bracket was placed a lighted candle between the cords, which were consumed when the candle had burned sufficiently. The axe being then unsupported, fell to do its fearful execution.—*American Practitioner*, August.

Force of Ciliary Motion. By H. P. Bowditch, M.D., Professor of Physiology, Harvard Medical School.—Most observers who have studied the movements of cilia have directed their attention to the evidence of ciliary activity afforded by the rapidity with which very light bodies are carried over the surface of the ciliated membrane. Thus Valentin (Wagner's Lexicon, i. 506) observed that the globules of mucus on the gills of anodonta were carried forward at the rate of four m.m. in one minute. Engelmann (Flimmerbewegungen, p. 70), in studying the various conditions which affect ciliary activity, made observations on the rapidity with which a small globule of sealing-wax, suspended by a light silk thread so as to merely touch the membrane, was moved forward over the ciliated surface. The rate varied in his observations from 7·8 to 24·5 m.m. in one minute. Calimburces (American Naturalist, v. 611) also, in constructing his apparatus for measuring ciliary movement, made all the parts as light as possible, in order to reduce the work done by the cilia to a minimum.

The late Jeffries Wyman (Bernard, Les Tissues Vivants, p. 141) was the first to call attention to the fact that the force exerted by cilia is by no means inconsiderable. He describes his experiments on frogs as follows: "The mucous membrane, being carefully dissected from the roof of the mouth, is pinned to a board. A piece of skin from near the throat of the frog, and from one third to half an inch square, is placed upon this membrane with the inner surface in contact with the cilia, it being kept in mind that these

vibrate from before backwards towards the throat. On the skin may be placed a plate of lead of somewhat smaller size. This serves as a vehicle to which weights may be added at will to increase the load. . . . Pains should be taken to have the board on which the experiment is made perfectly horizontal, otherwise a sliding motion, especially when heavy weights are used, may come in to vitiate the experiment." The rate of movement was determined either by direct observation of the lead "vehicle" with its load, or by means of an index attached to the axle of the smaller of a pair of light cog-wheels, the "vehicle" being connected with the apparatus by means of a thread coiled round a drum on the axle of the larger wheel. By experiments performed in this way it was found that a weight of 1·3 grammes was carried fifteen m.m. in about one minute, the weight resting on a surface of twelve m.m. square, and that "forty-eight grammes, resting on a surface fourteen m.m. square, moved, though very slowly, across the whole length of the membrane; but the exact time was not noted."

It will be noticed that in these experiments the work done by the cilia consisted in overcoming the friction of the skin upon the membrane and of the parts of the index-apparatus on each other, and that the amount of this work, though increased by the addition of weights to the lead plate, was not, and could not well be, accurately determined. The weight being moved in a horizontal plane, there was no direct performance of work which could be measured by foot-pounds or kilogrammetres. In view, however, of the evidently very considerable force of the ciliary movement, it seemed important to determine the maximum of work which could be performed in a given time by a given surface of ciliated membrane. The simplest way of accomplishing this object seemed to be to repeat Wyman's experiments, with the modification of giving to the board on which the membrane rested an inclination which would compel the cilia to move a weight resting upon them up an inclined plane. Then the product of the weight by the height through which it was lifted would give the value sought.

After several preliminary experiments an apparatus was constructed, consisting of a piece of thin board about eleven c.m. square, with a narrow strip of wood, about seven m.m. in thickness, fastened at the middle of one edge. A strip of glass 4·5 c.m. long, by one c.m. broad, with edges smoothed on a grindstone, was firmly cemented by one end to the middle of the strip of wood, and thus projected over the surface of the board, parallel to, and 7 m.m. from it. A frog with brain and spinal cord destroyed was then prepared as follows: a transverse incision, about one c.m. long, was made through the mucous membrane of the roof of the mouth as far forward as possible. The free end of the glass strip was inserted into this incision, and pushed back between the membrane and the bones of the palate. The lower jaw was then cut away, and the œsophagus laid open as far as the stomach. The cut edges

of the œsophagus were kept extended by pins thrust through them into the board below. The frog thus lay upon the board with the body under the strip of glass, and the ciliated membrane from the anterior edge of the palate to the stomach smoothly stretched over it and accessible to observation and experiment. A vehicle to be moved by the cilia was made by cementing a small oval piece of glass of 1·437 square c.m. area to a thin piece of wood of the same size. The glass surface was then covered with a piece of frog's skin stretched over it, with the inner surface outward, and held in place by a thread tied round it and lying in a groove cut in the edge of the wood. This vehicle, when placed with the skin downward upon the ciliated membrane, was readily carried along towards the stomach. The work done by the cilia could be increased either by placing weights upon the vehicle or by inclining the whole apparatus so that the vehicle should be carried up an inclined plane. The latter object was readily effected by means of a wedge pushed under the edge of the board opposite to the point where the glass strip was fastened. The wedge was so graduated that in every position it could be seen at a glance what proportion of the distance moved over by the vehicle was movement in a vertical direction. The movement of the vehicle was observed with a microscope of low power, furnished with an eye-piece micrometer. The draw-tube of the instrument was so adjusted that thirty divisions of the eye-piece micrometer corresponded to one m.m. in the field of vision. A stop-watch was used to determine the time occupied by a chosen point on the vehicle in passing over these thirty micrometer divisions.

It will thus be seen that the data of observation in our problem were as follows:—

$a =$ grade per cent.; *i.e.*, the movement in a vertical direction expressed as a percentage of the distance moved, and determined by a simple observation of the position of the wedge.

$b =$ weight in grammes of the vehicle and the load placed upon it.

$c =$ time occupied by the vehicle in moving one m.m.

$d =$ area in $\overline{c.m.}^2$ of the surface of the vehicle applied to the ciliated membrane.

The value to be determined by means of these observations was the amount of mechanical work, expressed in grammillimetres, which was performed by one square centimetre of ciliated membrane in one minute. If we express this value by x we shall have the formula,—

$$x = \frac{a}{100} \times b \times \frac{60}{c} \times \frac{1}{d} = \frac{6\,ab}{10\,cd}.$$

This formula expresses, of course, only the work done in raising the vehicle with its load. A certain amount of work is also performed in overcoming the friction of the vehicle on the membrane; but this amount is very difficult to determine, because the moving force is generated at the same point where the friction is

applied. It is probably small in comparison with the work of raising the vehicle, and it was therefore disregarded.

A modification of the experiment consisted in placing the board in a perpendicular position, so that the vehicle, held in contact with the membrane by capillary attraction, was carried vertically upward. In this case $a = 100$, and the above formula becomes $x = \frac{60\,b}{c\,d}$. In order to obtain as great uniformity as possible in these observations, it was, of course, important to avoid drying of the membrane. For this purpose a 0·5 per cent. solution of common salt, made very slightly alkaline with sodic hydrate, was applied from time to time to the membrane. The results were nevertheless by no means so uniform as could be desired. The following table may serve as an example of the experiments. In this case the grade was at first kept constant at ten per cent., and weights of five, ten, and twenty grammes placed successively upon a vehicle weighing 0·534 gramme. Afterward the board was placed in a vertical position, and observations made on the rate at which the vehicle alone was carried upward.

a. Grade. Per cent.	*b.* Weight. Grammes.	*c.* Time. Seconds.	*d.* Area. $\frac{}{\text{c.m.}^2}$	$x = \frac{6ab.}{10cd.}$ Grammillimetres.
10	10·534	10·8	1·437	4·074
10	10·534	7·4	1·437	5·940
10	20·534	15·	1·437	5·718
10	0·534	3·	1·437	0·743
10	5·534	5·6	1·437	4·127
10	5·534	5·	1·437	4·622
10	10·534	8·5	1·437	5·176
10	20·534	12·6	1·437	6·805
10	20·534	12·6	1·438	6·805
100	0·534	5·3	1·437	4·208
100	0·534	4·2	1·437	5·310
100	0·534	3·8	1·437	5·868
100	0·534	4·4	1·437	5·067
100	0·534	4·8	1·437	4·646
100	0·534	5·	1·437	4·460
100	0·534	5·	1·437	4·460

It will be seen from the table, that by loading the vehicle the rapidity of its movement was diminished, but not in proportion to the increase of the weight. In other words, the greatest amount of work was obtained with the heaviest load. Thus the cilia, when compelled to carry a weight of 20·534 grammes up a grade of one in ten, performed, in one minute for each square centimetre of surface, an amount of work equal to 6·805 grammillimetres. This was the maximum of work obtained in upward of one hundred observations made with various weights and grades; but it is not probable that it is the maximum of work which cilia are capable of performing. It is perfectly possible that under somewhat different con-

ditions they may work to much better advantage. It will be noticed, for instance, in the above table, that when carrying the unloaded vehicle vertically, they performed an amount of work nearly equal to the maximum obtained in carrying heavy weights up an inclined plane. It is not improbable that by altering the size, weight, or shape of the vehicle, conditions may be found under which the cilia may perform a greater amount of work than that here recorded. The investigation of this question will be the subject of a future series of experiments.

The statement that a ciliated membrane performs per square c.m. per minute, 6·805 grammillimetres of work, gives a very imperfect idea of the force of the moving cilia, unless we obtain a conception of the bulk of the organs where this force is generated. It is generally believed, though not absolutely demonstrated, that the force which moves the cilia is generated in the protoplasm of the ciliated cells. These cells in the frog's mouth are spherical in form, with the cilia upon one side. The average of nine measurements gave a diameter of 0·016 m.m., which agrees very well with Valentin's figures. If we imagine spherical cells of this size placed close together on the surface of the membrane, the volume of the cells on one square centimetre of surface will be 1·6 cubic millimetres, and their weight, if we suppose them to have the specific gravity of water, will be 0·0016 gramme. Thus we see that a mass of protoplasm weighing 0·0016 gramme performs in one minute an amount of work equal to lifting 6·805 grammes to the height of one millimetre. This is equal to lifting 0·0016 gramme to the height of 4253 millimetres. In other words, the ciliated cells perform in one minute an amount of work equal to lifting their own weight to the height of 4·253 metres. It is interesting to compare this value with that obtained for the striated muscles of the heart. The work performed by the heart at each pulsation is equal to the weight of the blood expelled by the contraction multiplied by the height of a column of blood which measures the tension in the aorta and pulmonary arteries. From these data Schiff (Physiologie de la Digestion, i. 24) has estimated that the heart does in one minute an amount of work equal to lifting its own weight to the height of one hundred and fifty metres, a value more than thirty-five times as great as that above given for the ciliated epithelium.—*Boston Medical and Surgical Journal*, 10th August.

Part Fourth.

MEDICAL NEWS.

Fothergillian Gold Medal.—We would call attention to the notice in our advertising sheet of the subjects of competition for 1877 and 1878.

ARMY MEDICAL SERVICE.—List of Gentlemen who competed successfully for Appointments in Her Majesty's Army Medical Service at the Examination held at the University of London on the 14th of August 1876.

Order of Merit.	Names.	Marks.	Order of Merit.	Names.	Marks.
1.	Allin, W. B.,	2220	18.	Robinson, R.,	1600
2.	Ryan, M. R.,	2081	19.	Allen, W. H.,	1505
3.	Robbins, H. J.,	1976	20.	Lamprey, J. J.,	1485
4.	Reynolds, E. O.,	1935	21.	Murchison, F.,	1435
5.	Carey, J. T.,	1925	22.	Bourke, U. J.,	1409
6.	Morris, J. J.,	1869	23.	Keith, A. C.,	1395
7.	Rainsford, W. J. R.,	1858	24.	Peyton, J. S.,	1340
8.	Tuthill, P. B.,	1850	25.	Russell, G. M.,	1325
9.	Williamson, J. F.,	1840	26.	Large, W. B.,	1305
10.	Boyd, J.,	1790	27.	Carleton, A. W.,	1295
11.	Hayes, A. E.,	1782	28.	Brodie, J.,	1285
12.	Hewett, A.,	1745	29.	Gunning, R. C.,	1255
13.	Johnston, P. H.,	1744	30.	Cotton, H.,	1230
14.	Boulger, J.,	1675	31.	Hunt, J. P.,	1215
15.	Laffan, G.,	1675	32.	Hughes, G. A.,	1180
16.	Roche, E. A.,	1625	33.	Eager, F. G. L.,	1055
17.	Emerson, J. B.,	1615			

LIST OF CANDIDATES WHO RECEIVED THE DEGREE OF DOCTOR OF MEDICINE, THE DEGREE OF BACHELOR OF MEDICINE, AND THE DEGREE OF MASTER IN SURGERY, IN THE UNIVERSITY OF EDINBURGH, ON TUESDAY, 1ST AUGUST 1876.

Degree of Doctor of Medicine, under the New Statutes.—Frederick William Barry, Scotland, M.B. and C.M. 1874; Johannes Aveticion Calantarients, Armenia, M.B. 1874; James Angus Cameron, Scotland, M.B. and C.M. 1867; Alfred Midgley Cash, England, M.B. and C.M. 1873; Thomas Dodson Chalmers, England, M.B. 1869; Holland John Cotton, England, M.B. and C.M. 1874; John Sim Cowan, Scotland, M.B. and C.M. 1871; Daniel John Cunningham, Scotland, M.B. and C.M. 1874; Edward Harriman Dickinson, England (M.A. Oxon.), M.B. and C.M. 1870; Alfred Eddowes, England, M.B. and C.M. 1873; John Alexander Gailey, Scotland, M.B. 1874; Alexander James, Scotland, M.B. and C.M. 1872; Johnstone Macfie, Scotland, M.B. and C.M. 1871; Charles Watson Macgillivray, Scotland, M.B. and C.M. 1873; William Henry Murray, Scotland, M.B. and C.M. 1874; Robert Pairman, Scotland, M.B. and C.M. 1872; Robert Edward Phillips, England (M.A. Cantab.), M.B. and C.M. 1874; Henry Walter Plant, England, M.B. and C.M. 1874; Abraham Wallace, Scotland, M.B. and C.M. 1873.

Degree of Doctor of Medicine under the Old Statutes.—Stewart Aaron Lithgow, Scotland.

Degrees of Bachelor of Medicine and Master in Surgery.—Robert Frederick Adams, Scotland; James Anderson, Scotland; James Baker, England; George Andreas Berry, Scotland; Joseph Senior Boothroyd, England; George Victor Louis Bouchet, Mauritius; Charles Boyce, Ireland; Daniel Catlin Burlingham, England;

Robert Neill Campbell, Scotland; John Theodore Cash, England; Osborne Henry Channer, India; Thomas Frederick Chavasse, England; Robert Maxwell Clark, India; William Lennox Cleland, China; Charles Alfred Coleman, Nova Scotia; James Craig, Scotland; Alexander Lesslie Curror, Scotland; Michael Dewar, Scotland; Henry Dobson, England; William John Dodds (B.Sc. Edin.), England; George Augustus Emerson, India; Montague Stokes Eyre, India; John Henry Suffield Finniss, Mauritius; George Alexander Gibson (B.Sc. Edin.), Scotland; David Grant (M.A. Edin.), Scotland; James Dundas Grant (M.A. Edin.), Scotland; William Thomas Grant, Scotland; James Allan Gray (M.A. Edin.), Scotland; Henry Brougham Guppy, England; John Hassall, England; Henry Hay, Scotland; John Home Hay, Scotland; Robert William Irvine (M.A. Edin.), Scotland; William Hadden Johnson, Australia; David Johnston Jones, England; Joseph Hay Keay (M.A. Edin.), Scotland; Charles Scott Kilner, England; Robert Kirk, Scotland; William Lamb, Scotland; George Lockwood Laycock, England; John Rudd Leeson, England; Simon Linton, Scotland; William Logie, Scotland; Alexander Lyall, Scotland; William Henry Maberly, England; Peter M'Bride, Hamburg; Thomas Ranken Macdonald, Scotland; Aymer Robert M'Dougall, Scotland; Hugh M'Laren, Scotland; David Menzies, Scotland; John Bell Miller, Scotland; Byers Moir, England; James Murray, Scotland; Thomas Goodall Nasmyth, Scotland; George Ogilvie (B.Sc. Edin.), Scotland; Leslie Ogilvie (B.Sc. Edin.), Scotland; John James Pringle, Scotland; James George Robertson, Africa; John Robertson (B.Sc. Edin.), Scotland; William James Rose (M.A. Aberd.), Scotland; Arthur Pickston Russell, England; William Russell, Isle of Man; Duncan Robert Stewart, Scotland; Edwin Pringle Thew, England; Abraham Garrod Thomas, Wales; Thomas Edgar Underhill, England; John James Underwood, England; Alexander Walker, Scotland; David Wylie Wallace, England; Bryan Charles Waller, England; Vincent Wanostrocht, England; Charles Henry Waterhouse (B.A. Lond.), England; Charles Scott Watson, Scotland; John Douglas Watt, Scotland; William Henry White, England; John Henderson Wright, Scotland; Alfred Harry Young, England.

Degree of Bachelor of Medicine.—Edward Leopold Baker, England; Arthur Richard Barnes, England; William Galletly, Scotland, received the Degree on 20th April 1876; William Henry Montgomery, America; Hans Jurgens Moolman, Cape of Good Hope; Robert Roxburgh, Scotland; Andrew Smith, Scotland; Charles Edward Henderson Warren, England.

Degree of Master in Surgery.—Thomas Harker, England, received the Degree on 20th April 1876; John Bisset Smith, M.B. 1873 (M.A. Aberd.), Scotland.

The Ettles Prize for 1876 has been awarded to David Grant, M.A., M.B., C.M.

OBITUARY.

JAMES C. FRAZER, M.D.

We regret to notice the death of a much-respected member of the medical profession in Edinburgh—Dr James C. Frazer, of 20 Clarence Street.

Dr Frazer was born on the 20th June 1829. When he was a mere boy, he became deeply interested in the study of chemistry. His friend, the late Dr George Wilson, recommended him to follow the profession of medicine. Dr Frazer took his degree from the University of Edinburgh in 1855, and became a Member of the College of Physicians in 1874. During nearly twenty years, he pursued the duties of his profession with much assiduity, as well as acceptance to a large number of patients. He was a great favourite with children, and was frequently in the habit of purchasing toys for his juvenile friends.

Dr Frazer was much respected by his professional brethren, many of whom were most kind and attentive to him during his long illness of twenty-three months—suffering as he did from locomotor ataxy. It may not be out of place to mention that Dr Frazer was a great chess-player, and held the gold medal of the Chess Club for fourteen years. The *Glasgow Herald*, in a notice of his death, says, "Dr Frazer was one of the first chess-players Scotland has produced."

He died on the 6th of August last, much regretted by many friends.

Mr Robert Wiseman, L.R.C.S., Cupar.—Many of our readers must have known this kind-hearted, sensible, and careful practitioner; though for the last two years he has been prevented by the state of his health from doing much work, he had for nearly forty years filled a large place in Cupar and its neighbourhood, both as doctor and friend to many in all ranks of society. The late Professor Syme, who often met him in consultation, had a very high opinion of the soundness and sensibleness of Mr Wiseman's practice. A Licentiate of the College of Surgeons of Edinburgh in 1822, he for some time turned his attention to literary pursuits, editing the *Fife Herald;* but since 1838, when he succeeded his brother in practice, he has had a very busy professional career, and has maintained a high character as a family practitioner of the old school.

Death of Professor Laycock.—This distinguished author and teacher died on 21st September. A notice of his life and labours will appear in our next issue.

Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*Note in Supplement to a Previous Paper, entitled, "Diphtheria and Croup: What are they?"* By Sir JOHN ROSE CORMACK, K.B., F.R.S.E., M.D. Edin., M.D. Paris, Fellow of the Royal College of Physicians of London, Chevalier of the Legion of Honour, Physician to the Hertford British Hospital of Paris.

IN the September number, in speaking of the entirely different sense in which the term "croup" is employed in English and French medical literature, I said:—"Most French physicians of the present day, adopting the views as well as the nomenclature of Bretonneau and Trousseau, apply the names *croup* and *vrai croup* (true croup) to laryngeal diphtheria, to[1] distinguish it from the *faux croup* (false croup), the non-membranous affection in which spasm with stridulous breathing is the predominating feature. Many of them, in this way, include together the non-inflammatory spasmodic affection (laryngismus stridulus) and the inflammatory affection (laryngitis), which latter is nearly always a stridulous affection in infants and young children. It (laryngitis) is the inflammatory croup of various English authors, and was represented by Francis Home as a stage of membranous croup (diphtheria)."

Since the appearance of the lines now quoted, I have received several letters on the subject of the different meaning attached to the term "croup" by French and English writers. One correspondent says:—"Do you mean to say that 'croup,' in recent and current French literature, is synonymous with laryngeal and laryngo-tracheal diphtheria, and is not the 'croup' of English writers? If so, I should like to know whether English translators and compilers may not unwittingly have led us into great mistakes as to the French statistics of tracheotomy in croup and diphtheria, by speaking of the same affection as if two different diseases were under discussion."

[1] In transcribing the above passage, I regret to find that it appeared in the Journal without three words, viz.—"*laryngeal diphtheria, to*" by which omission its perspicuity was considerably impaired.

The points mooted by my correspondent are of so much importance that I am anxious to be allowed publicly to answer his queries, and to express, at the same time, my regret that the subject was dismissed in my former paper without some remarks to the same effect as those now offered.

In the first place:—"*Croup*" is the term generally employed in the writings of French physicians, and in their daily intercourse with one another, and with their patients, to designate diphtheria manifesting itself in the air-passages.

In the second place:—The French statistics of tracheotomy in "croup," as given by all the English authors whose writings I have examined, and also most of the discussions in English books on "croup" and "diphtheria," require to be rewritten. They are at present misleading, from their authors having been evidently unaware of the meaning attached in France to the word "croup." From the letters which I have received, in reference to the French use of that term in England and in France, I know that many will be surprised to read the preceding sentences; and to peruse the confirmation of my statement, contained in French medical dictionaries, as in the subjoined extract from the *Dictionnaire de Médecine, Chirurgie, Pharmacie, des Sciences Accessoires, et de l'Art Vétérinaire,* which I select for quotation from the brevity and compactness of its style.

The article CROUP in the Dictionary now named, edited by two distinguished men—E. Littré and Ch. Robin—contains the following sentence:—"In the present day, the term 'croup' is generally reserved for *tracheal diphtheria.* Certain affections attended by symptoms of suffocation, and analogous symptoms, but without false membranes, are distinguished from it by the names *false croup, pseudo-croup,* and *œdema of the glottis.*" The writer does not object to *tracheal diphtheria* being termed *croup* in the manner which he says is general; but he complains of pseudo-membranous affections of the uterus and intestine being likewise called croup. In continuation of the above-quoted passage he says:—"We find different authors—modern authors even—employing the expressions 'croup of the uterus,' 'croup of the intestine,' etc., to designate the presence on the internal surface of organs of false membranes of fibrinous or other character. This misuse of terms ought to be carefully avoided, even when the membranes in question are pseudo-diphtheritic."[1]

[1] The French is subjoined, as some readers may prefer the original to a translation:—"On réserve généralement aujourd'hui le nom de *croup* à la *diphthérite trachéale.* Certaines affections offrant des symptômes de suffocation, etc., analogues, mais sans fausses membranes, en sont distinguées sous les noms de *faux croup,* pseudo-croup, œdème de glotte. On trouve dans divers auteurs, même modernes, les expressions *croup de l'utérus, de l'intestin,* etc., employées pour désigner la présence de fausses membranes fibrineuses, ou autres, à la face interne de ces organes. Ce contre-sens doit être évité avec soin lors même qu'il s'agirait de pseudo-membranes diphthéritiques."

It is necessary to bear in mind that the facts and opinions given from French sources by most English writers regarding "croup" are facts and opinions regarding *diphtheria affecting the air-passages.* Keeping this in view, the reader will be able to account for, and perhaps somewhat to penetrate, the disheartening obscurity of some recent and very painstaking English articles and treatises on "croup" and on "diphtheria."

A source of greater perplexity originates in our best authors giving descriptions which deal in generalities, without giving in detail the clinical cases on which the general descriptions are founded.

I have received several letters expressing dissent from my opinion that there is no disease except diphtheria in which a membranous exudation is formed on the surface of the air-passages; and from the only one of these dissents accompanied by reasons, I quote the following sentences—claiming them, at the same time, as evidence against the views of the writer, and in support of my own.

An esteemed friend, an able physician, writes thus:—"You have not converted me." . . . "I read Johnson, Semple, and Jenner as they appeared, and I saw much reason in their statements, but I was not severed from the facts which I had observed for myself, facts leading me to believe in our early teachings, that in 'croup' (our old croup) we have a distinct disease, whilst in diphtheria we have another distinct disease, a blood-cachexia with local mischief. The sporadic occurrence of the former, and the epidemic or endemic occurrence of the latter, kept me to my faith. Three sisters and one brother of my own died of the croup. I distinctly remember seeing the fibrinous lining of the trachea in the case of one of my sisters, after she coughed it up—her immediate relief—our sure hope of her recovery—her soon relapse and death. All this happened, the others of us being in the same room, constantly around the cradle amusing her, living everyway under the same conditions, and yet none of us were ill. The fatal cases of my sisters and brother occurred at intervals of about two years, when croup *was not about.* My only living sister has had croup and nearly died from it. She was leeched, had calomel, and got well. Did she recover in defiance of treatment?"

From the description which I have just quoted, it is probable that the five cases, four of which were fatal, in my friend's family were all cases of diphtheria. As to the account of the case of the infant who coughed up the fibrous lining of the trachea, got immediate relief, seemed to be recovering, and then soon died, it is a graphic history, in a few words, of a typical case of diphtheria affecting the air-passages of a very young subject.

The occurrence of several cases of diphtheria at long intervals in the same family has been often observed. I have called attention to this interesting fact in my "Clinical Studies," vol. 2d, p. 277, where I say:—"It is an undoubted fact that a special aptitude to receive

the poison of diphtheria belongs to certain individuals, and to certain families in a much higher degree than to others; and also that certain districts, streets, and even particular houses in a street, receive repeated visits from diphtheria within a period of a few years, while habitations in immediate contiguity all around enjoy immunity from the disease, although they are apparently similar, or even—as is often the case—inferior in what are called sanitary conditions. There is evidently an unknown something in particular persons and places for which diphtheria has a decided liking."

To say that diphtheria is endemic and epidemic but not sporadic is a great mistake. At page 301 of the same volume of the work from which I have already quoted, I say:—"Diphtheria is contagious, and sometimes occurs as an epidemic, but is always present in some districts of the country and in some towns—in Paris, for example—in a sporadic form." This is the general opinion of authors. No physician practising in Paris can doubt its accuracy.

The supposed evidence adduced in favour of the existence of an inflammatory membranous croup distinct from diphtheria tells in exactly the opposite direction: that is to say, when cases of so-called "croup" are detailed, they are really cases of diphtheria affecting the air-passages.

For example—to take an illustration from a work deservedly held in the highest respect and repute—"Lectures on the Diseases of Infancy and Childhood," by Charles West, M.D. In that work there is a lecture on "Diphtheria or Angina Maligna," in which the author says:—"I have come to the conclusion which I long hesitated to adopt, that what differences soever exist between croup and diphtheria, they must be sought elsewhere than in the pathological changes observable in the respiratory organs. The mere extent of false membrane in the air-passages certainly affords no ground for a distinction between the two affections, though I think it is more common to find the false membrane reaching to the tertiary bronchi in diphtheria than in primary croup." In this passage, Dr West very nearly states the great truth which Bretonneau is believed by the French school of medicine, and by many physicians of other schools, to have established —that *pseudo-membranous* croup is always "*diphtheritic*."

In the same work, Dr West publishes a lecture on croup as distinct from diphtheria, in which he says:—"It can scarcely be necessary to tell any of you that croup is the English name for the disease designated by scientific writers *cynanche trachealis* or *cynanche laryngea*. It consists in inflammation, generally of a highly acute character, of the larynx or trachea, or both, which terminates in the majority of cases in the exudation of false membrane, more or less abundantly, upon the affected surface." (Lecture xxiii., p. 390, 6th

edition, London, 1874.) Has this definition of Dr West a clinical basis? I have never seen acute non-specific inflammation of the larnyx or trachea terminating in the exudation of false membrane; and I cannot find published accounts of any minutely observed and reliably described cases of that kind. Dr West does not give any such case in the lecture on croup from which I have now quoted, and the only case which he there gives in detail as a case of croup, is one which, following Bretonneau's teaching, I call a typical case of diphtheria. The case and the sentence by which it is introduced are subjoined.

"The danger," says Dr West, "of being lulled into security by the apparent improvement of a child who has been attacked by croup, is so serious, that, before proceeding to consider the treatment of the disease, I will relate to you a case by way of caution. On the 25th of June, a little girl, four years old, became hoarse and lost her appetite, though she did not appear otherwise ill. On the 27th, she seemed less well, and in the night was very restless, and had difficulty of breathing. On the 28th, respiration was more difficult, and though she had but little cough, she seemed sometimes in danger of choking. In the night, a croupy sound accompanied her breathing, and violent attacks of dyspnœa were of frequent occurrence. On the 29th, she was taken to a surgeon, who gave her some medicine, after each dose of which she was sick; and this sickness was followed by much relief, and by an almost complete cessation of the croupy sound. This improvement was thought to have continued during the 30th; the child slept quietly during the night, and was considered so much better by her parents, that she was brought by them to the Children's Hospital, at 9 A.M., on 1st July. As she lay in the lap in a sitting position, her countenance was pale and livid, her respiration was sibilant, her surface cool, her pulse very frequent and feeble, but she did not appear to be in any of the distress usual in the advanced stages of croup. At 9 A.M. she was admitted; at 6 P.M. she died, though no great distress nor violent struggle for breath preceded her death. The extensive deposit of false membrane in the trachea and bronchi showed, that in spite of her apparent amendment for a season, disease must all the time have been advancing, unsuspected by her friends, overlooked even by her medical attendants."

This case, though given by Dr West as a case of *croup*, a disease which he regards as distinct from diphtheria, will be regarded by many more than myself, as a graphically told typical case of *diphtheria* implicating the air-passages in the usual manner. It was typical in its manner of invasion, in its course and duration, in its being relieved by emetics, in the asphyxia proclaimed by the pale lividity of countenance observed nine hours before death; and, finally, it was typical in the extensive deposit of false membrane in the trachea and bronchi.

In illustration of the first part of this note, I may here remark that Dr West's case would have been called "croup" by the physicians of France, because by that term they mean diphtheria manifesting itself in the air-passages.

The facts now adduced explain why the controversy about "croup" and diphtheria, lately and still carried on in the English medical journals, appears so aimless and obscure. The clinical element has been submerged in generalities; and the believers in a membranous non-diphtheritic croup have not appealed to the only valid test—minutely observed and minutely reported cases. When they have incidentally or accidentally reported cases of their so-called membranous croup, they have, according to my judgment, described cases of diphtheria affecting the air-passages.

ARTICLE II.—*Notes on Salicylic Acid.* By JOHN A. ERSKINE STUART, L.R.C.S. Edin., Extraordinary Member of the Royal Medical Society.

(*Being a digest of a paper read before the Royal Medical Society, with addenda.*)

SALICYLIC ACID is a drug of recent introduction, which has been much written upon in all the journals. Having read a short paper on it in *L'Union Médicale,* I purchased a quantity of the drug in the beginning of this year, and carried out several experiments, some of which are very interesting. I propose to look at the subject from a threefold point of view. Having given a rapid sketch of its pharmacy, which is very interesting, I will then narrate some of the experiments, and try to explain some of its uses from its physiological actions.

Salicylic acid occurs, when pure, in the form of a pure white powder, slightly soluble in water, soluble in alcohol and in warm glycerine. It has no smell, but when in solution its odour resembles that of carbolic acid. Its taste is slightly sweet. Its chemical formula is $C_7 H_6 O_3$. The scope of this paper prevents my going into its preparation; suffice it to say that it is found in nature in the essential oil of the meadow sweet (*Spiræa ulmaria*), and in the oil of winter green (*Gaultheria procumbens*). Its relations, on the one hand to carbolic acid, and on the other to gallic acid, are very instructive, as its properties are antiseptic and astringent. The formulæ of the three substances are as follows:—

$C_6 H_6 O$ carbolic acid;
$C_7 H_6 O_3$ salicylic acid;
$C_7 H_6 O_5$ gallic acid.

It is thus not only intermediate in composition, but also inherits the properties of both its neighbours. On heating salicylic acid, it splits into carbolic and carbonic acids, the smell of the former being easily detected.

Its insolubility in water is a great disadvantage in salicylic acid, as the antiseptic lotions of it cannot easily be prepared. Dr Bose, of Berlin, has discovered that, with the aid of borax, as much as ten parts of the acid can be dissolved in one hundred of water. Now, in water, salicylic acid is only soluble to the extent of one in three hundred, so that this is a great advantage over the simple solution in water. Dr Bose has pointed out that, as neither borax nor salicylic acid is chemically pure, a small amount of residue must always remain. However, I have been able to dissolve as much as twenty grains of salicylic acid in one ounce of water, in which fourteen grains of "lump borax" had previously been dissolved by the aid of heat. Dr Bose used "powdered borax," which is very apt to be adulterated, and this accounts for the residue obtained by him. My solutions, made with the borax in lump, had no residue whatever. The test for salicylic acid is very distinctive; with perchloride of iron, a beautiful dark purple solution, not unlike Condy's fluid in appearance. I have found out, since reading my paper at the Royal Medical Society, that this solution, in the presence of organic impurity in water, acts in precisely a similar manner to liquor potassæ permanganatis, the fine colour being entirely lost, or changed to black or brown, in the presence of these impurities.

It is not within the scope of this paper to enlarge upon the preparations of this drug, but I may merely mention how it may conveniently be given internally, as it is found by some practitioners to be rather troublesome to administer. In powder, it is almost impossible to swallow it alone, as I believe, from the experience that I had in trying it, that the heat of the mouth causes carbolic and carbonic acids to be evolved. It can be administered in rice paper, or in combination with starch, or it may be administered in the following formula, which I have found useful, and which does not hurt the mouth and throat to any extent compared to the powder:—

℞ Acidi salicylici,
Potass. bicarb. āā gr. xv.
Aquæ ℥i. S.

Carbonic acid is evolved, and the potash combines with the acid to form salicylate of potash. Salicylic acid is non-poisonous, as much as ʒiv. having been administered in Germany. I myself have taken as much as ʒii. without producing the slightest bad effect, except displaying its specific action, which I shall afterwards explain.

Actions of Salicylic Acid.—It is antiseptic, disinfectant, deodorizer, and astringent.

The following experiments, classified, may be of use in proving the points which I think are important:—

1*st. Experiments as to the Action of Salicylic Acid taken Internally.*

2*d*. *Experiments as to its Action on Fermentable Fluids.*

3*d*. *Experiments as to its Action Externally Administered.*

1*st*. *Action Internally.*—(1) At 3 P.M. on 9th January 1876, I took a dose of nine grains of the powder of salicylic acid. On swallowing it, I experienced a most disagreeable sensation of choking, from the astringent nature of the drug, and also from what seemed to be an evolution of carbonic acid gas. I took this dose on an entirely empty stomach, not having tasted food since 8 A.M. At 5 P.M., before dining, I passed a quantity of urine, which I examined with the liq. ferr. perchl., and it gave the dark purple reaction distinctly. I failed to detect it in the saliva I put aside a small phial containing some of the urine then passed. Late that same evening, about an inch of deposit made its appearance in the bottom of the bottle, but the superincumbent fluid was clear, and quite fresh to the smell. It remained so till the 18th January, when an ammoniacal odour began to develop. It thus was kept fresh for four nights. After swallowing this dose, my mouth and throat were dry for a long time, and then a regular catarrh of the mucous membranes of nose, mouth, and throat came on, and lasted for some days. This action I observed on every occasion on which I took this drug internally.

(2) 17*th January*.—I took three drachms of a solution of one of salicylic acid in three hundred of water at 12.10 P.M, and at the same time also injected one and a half drachms of the same solution per rectum. In twenty minutes, it was detected in the urine.

(3) 24*th January*.—I took, at 10 P.M., a dose of infusion of two drachms of jaborandi leaves, and at 10.40 injected, per rectum, a nine-grain solution of salicylic acid with borax. Although, at 12 P.M., it was distinctly traceable in the urine, it could not be detected in the saliva. The salivation from the jaborandi was most complete, lasting for six hours, and I calculated that twelve ounces of saliva were poured out. We are told by experimenters that cases of belladonna poisoning have been cured by giving large doses of jaborandi, and eliminating the poison by the salivary glands. However, with salicylic acid, I could not detect it in this hyper-secretion of fluid.

(4) On injecting a pretty strong solution of the acid per rectum, I found that the catarrh, which is set up by the administration of the drug by the mouth, is also produced in this way.

(5) Wishing to see the action of a large dose, I took, one evening, a dose of ℥ii. of the drug, part by mouth, and partly per rectum. The temperature and pulse were not influenced by it, nor was there any gastric disturbance, which some writers insist takes place. However, the catarrh in the throat, mouth, and nose, which I had previously mentioned, all appeared, and besides this, my breath had the characteristic odour of the solutions of salicylic acid for some few days after taking the dose. I also

observed that my bowels were very much constipated for some three or four days.

2d. Its Action on Fermentable Fluids. a. Urine. b. Milk.

a. Urine.—(1) On 10th January, I took two one-ounce bottles, and, having filled both with perfectly fresh urine, added to the one a pinch of the salicylic acid in powder, and to the other nothing. The bottles were placed side by side, under precisely similar conditions, and freely exposed to the air. On the 12th January, two days after, the urine to which the powder had been added was perfectly clear and free from ammoniacal odour, while the other sample, left to itself, was muddy, and had a slight ammoniacal odour. On microscopic examination on the 14th, the first-mentioned sample was seen to contain no vibrios nor bacteria, while the second was teeming with these organisms. The urine passed, after taking a dose of nine grains, kept fresh, although exposed to the air, for four nights, as previously mentioned.

(2) *21st January.*—I put aside two samples of urine, one containing two drachms of the 1–100 solution of salicylic acid, made by the aid of borax and heat, and called, for shortness, boro-salicylic solution, and the other sample left alone. The two samples were placed under precisely similar conditions, exposed freely to the air. On the 25th, the first specimen is perfectly clear and odourless, while the other is entirely cloudy, and has a strong ammoniacal odour.

(3) *25th January.*—To a sample of putrid urine, I added one grain of salicylic acid in powder. The urine had a strong ammoniacal odour, but on the addition of the powder it became like the smell of fresh urine.

(*b*) *Milk.*—(1) *14th January.*—I placed two ounces of sweet milk in a tumbler, and added to it two drachms of the 1–300 solution of salicylic acid in water. The tumbler was allowed to stand on a chimneypiece above a fireplace, in which the fire was lighted from eight in the morning till twelve at night. It was, therefore, in a position where every chance for fermentation to take place was present. Notwithstanding this, it remained free from the smell indicative of the lactic acid fermentation until the 18th, thus keeping fresh for four days.

(2) On adding a pinch of the powder to this putrid milk, the odour, which was very obnoxious, at once disappeared, and it assumed the smell of new milk, as formerly. With a strong solution, there is no doubt that milk might be preserved for considerable periods, as on the Continent butcher-meat has been kept sweet by rubbing the powder of salicylic acid into it.

3d. Experiments as to its External Acion.—Having made some incisions with a bistoury in the back of my forearm, they bled severely. The application of the powder of salicylic acid was sufficient to arrest it. In paring a corn on the little toe, a con-

siderable amount of hæmorrhage usually takes place, which I never can stanch by pressure and cold. On this occasion, the application of the powder arrested it at once.

Conclusions arrived at from the above Experiments.—The conclusions arrived at from the above experiments are, that it is an antiseptic, deodorizer, and astringent, possessing these three properties in a marked manner. That it produces a specific action on the mucous membrane of the mouth, nose, and throat, is undoubted, as the catarrhal symptoms are produced in these regions whether it is taken by the mouth or rectum. That, from its rapid absorption by the blood, it is quickly carried through all parts of the economy, and its action is thus quickly manifested. The antiseptic properties being so marked, and its character being non-poisonous, it is sure to prove efficient in zymotic disease, in the same way that sulpho-carbolate of soda has been used.

Salicylic acid, although proved by Godeffroy to be three times as strong an antiseptic as carbolic acid, is so difficult to dissolve, that its spray is not efficacious. Its use as an external antiseptic is thus much prevented, as, from its non-irritating, and non-poisonous qualities, it is otherwise eminently suited for use externally. As it is not likely to rise into much fame as an external antiseptic, I shall conclude with a few remarks as to how its action may be explained in three diseases in which it has been used with success, viz., rheumatic fever, typhoid fever, and diphtheria.

No explanation of the changes which salicylic acid undergoes in the economy has yet been attempted, as far as I have observed in the journals. Is it not probable, as I mentioned previously, that salicylic acid, from the heat to which it is exposed in the alimentary canal, splits into carbolic and carbonic acids; that the carbonic acid, escaping as it passes down, causes the sensation of choking; and that the carbolic acid, coming in contact with gastric juice, forms an innocuous compound with some of its salts, and thus carries out its actions? This is the chemical explanation of its action, at least. By using the prescription before-mentioned, combining the potash and salicylic acid, we get rid of the carbonic acid gas, and thus prevent much of the burning in the throat.

Rheumatic Fever.—No doubt is expressed among practitioners as to the beneficial action of this drug in rheumatic fever. It has been tested largely in both hospitals and private practice, and found not only to shorten the disease, but also to lower temperature and relieve pain. Cases treated with continuous small doses are soon better. Its action in this disease is antipyretic. Possessing many of the properties of quinine, in the form of salicine, the temperature is lowered in much the same way as a large dose of quinine would do.

Typhoid Fever.—In this disease, salicylic acid has been little used in this country, but from German sources we have reliable

information regarding its application. Dr Reiss, of Berlin, used as large a dose as four scruples. He found that often after the first dose, and usually after the second, the temperature fell below the normal, and remained so for twenty-four hours. In these cases, only one daily dose of the under-mentioned formula was given, and it was found that eight or ten doses were sufficient. The formula for a dose was as follows:—

℞ Acid. salicyl.,
Sodæ carb. āā ℈iv.
Tinct. aurant. ʒi.
Aquæ ℥iss. M.

The result was that, generally after the fourteenth day of the fever, there was no abnormal rise of temperature. Dr Reiss found that this result happened in the most of 260 cases which he treated.

The action in typhoid fever may be explained thus:—It acts in such enormous doses as an excellent astringent on the bowels, and also as an antiseptic on the system generally, as well as on the bowels.

Diphtheria.—Wagner used it as a remedial agent in diphtheria, and also in an epidemic of it, with success. Frontheim also used it as a prophylactic in this disease, and it seems to me that it will be yet much used as a prophylactic in all febrile disease. My theory of its action in diphtheria is this, that it acts on the body generally as an antipyretic, and that, by setting up its specific catarrhal action on the mucous membranes of the throat, it helps to arrest the disease.

In the *Edinburgh Medical Journal*, 1837, Dr Blom ascribes the beneficial action of salicine to the fact that it acts as a tonic to the mucous membranes, and improves the character of the secretions. If this is the case, it may account in some manner for the action of salicylic acid in typhoid fever and diphtheria. Salicine is not so burning a substance to swallow as the salicylic acid, and it does not set up the characteristic catarrh which I mentioned.

I have now got through my subject, although there are many points of interest in the original on which I might have dwelt with profit. But I have already far exceeded moderation, and must draw to a close. The subject is an interesting one, and one is apt to go on *ad libitum*, at a congenial theme. I have only to state, in conclusion, that I have been as careful as possible to avoid mistakes in observation, and have been watchful not to overstate the results obtained.

ARTICLE III.—*Compound Fractures Treated Antiseptically in the Greenock Infirmary, during the course of Twelve Months.* By J. ROBERT BLACK, M.D. (Edin.), Visiting Surgeon to the Greenock Infirmary.

(*Read before the Greenock Medical Association, 4th October.*)

CASE I.—*Compound dislocation of right knee-joint, with compound comminuted fracture of the right patella, comminuted fracture of right femur, with other injuries.*

MARY M'B., aged thirty-five, admitted 20th July 1875.

History.—That day, while in a state of intoxication, fell over the window of her house, a distance of about 36 feet, on to her bended knees, the right knee striking first, then the left and head simultaneously.

Condition on Admission.—Patient was under the influence of drink and very restless; on examination it was found—1*st*, That there was a wound in front of the right knee-joint about the size of a halfpenny-piece, from which a flat portion of the patella was protruding, and lying loose was removed. This was found to be a portion of the centre of the articular surface of the bone, and measured one inch and a half by one inch, and half an inch thick. On passing the finger, previously made aseptic, into the wound, the patella was found to be comminuted, the upper portions being separated from the lower by a considerable distance, through which the finger passed into the joint. The tibia was dislocated backwards, the synovial fluid escaping freely by the wound through and around the patella. The tissues were much bruised and separated in the neighbourhood of the joint, and the finger could be passed into and around the joint in all directions to its full extent. The whole wound was filled up with a mixture of synovial fluid and blood, the wound being very clean, from the dress intervening between the knee and the pavement. 2*d*, That the femur of the same limb was comminuted, the fracture being at the upper and lower thirds, leaving a middle third loose, and lying obliquely to the line of the shaft; there was considerable swelling of the tissues around the seat of the fractures. 3*d*, A superficial wound of two or three inches in extent over the left knee, and the skin and superficial fascia separated from the patella and joint in all directions as far as the finger could explore. 4*th*, A wound one inch in length, running obliquely from above, downwards and backwards at the outer angle of the right eyebrow.

Treatment.—When first brought in the limb was soaked in carbolic acid lotion (1 in 50) by the house-surgeon, and I was sent for. The dislocation was then reduced, the knee-joint washed out with a solution of carbolic acid, one or two small portions of the patella removed, and the wound dressed with protective and gauze

The fractured femur was then put up in a long splint interrupted at the knee-joint, and two bags of ice put over the dressings. The other wounds were also treated aseptically.

21*st July.*—Morning, pulse 96, temp. 100° F.; mid-day, temp. 101°; evening, temp. 101·3°. Patient slept well during the night, the dressings were changed under the carbolic spray, the synovial fluid escaped freely from the wound, ice continued.

	Morning—		Mid-day—		Evening—	
	Pulse.	Temp.	Pulse.	Temp.	Pulse.	Temp.
24*th.*	88	99·4°	—	—	—	—
25*th.*	74	99·2°	73	99°	76	101·1°
26*th.*	90	99·1°	80	99°	88	100·1°
27*th.*	80	99·3°	74	98·4°	82	99·4°
28*th.*	76	99·2°	74	99·4°	80	100°
29*th.*	82	99·2°	80	99°	76	99·1°

During the last eight days the wound was dressed daily on account of the free discharge, which consisted apparently of synovial fluid and bloody serum. There was no erythematous blush around the wound or in the neighbourhood of the wounded joint. This morning, as there was some bulging around the joint, a free counter-incision was made, and the discharge liberated; it was of a reddish colour and free from smell; no synovial fluid was observed to-day. The patient sleeps well, no constitutional disturbance; tongue clean, appetite good, no thirst; takes the ordinary diet of the house, and having been accustomed to partake freely of spirits, she was allowed 3 oz. of port wine a day.

30*th.*—Morning, pulse 80, temp. 99·2°; mid-day, pulse 80, temp. 99·2°; evening, pulse 84, temp. 99·3°.

1*st August.*—Morning, pulse 80, temp. 98·3°; evening, pulse 84, temp. 99·3°.

2*d.*—Morning, pulse 70, temp. 99°; evening, pulse 74, temp. 99·1°.
3*d.* „ „ 74 „ 98° „ „ 80 „ 99·2°.
This morning almost no discharge, no swelling of the joint, heat and colour of skin normal; the dressings are now changed once in the four days, and ice discontinued.

4*th.*—Morning, pulse 74, temp. 98°; evening, pulse 78, temp. 98·4°.
5*th.* „ „ 74 „ 97°? „ „ 76 „ 98·2°.
From this date till dismissal pulse and temperature normal.

26*th.*—The granulations of the wound are exuberant, and the discharge very scanty. On passing the probe, we can feel necrosis of one or more portions of the patella, but quite firm. The long splint was taken off, and the fractures of the femur were found to be un-united, the upper being especially movable. The thigh was put up with cord and weights attached to the foot, and passing over a pulley, as extension, and perineal band as counter-extension, with short splints over the femur. She was left in this condition till—

5*th November*, when the necrosed portions of the patella being

still firm, and accompanied by a slight discharge, she was put under chloroform by the house-surgeon, and I removed the patella, leaving a considerable cavity, which was filled up by a blood-clot. The protective and gauze were placed over it, and the whole bandaged pretty firmly with a gauze bandage. In the evening hæmorrhage set in, which necessitated a breaking up of a portion of the clot, so that pressure might be applied to the bleeding point.

6th.—Pulse and temperature normal; the gauze pads were removed from the portion of the cavity and the wound dressed.

11th.—The wound has not been dressed since the 6th. What remained of the blood-clot (about three-fourths of it) had become organized, and was covered with granulations; discharge was scanty and viscid; there was entire absence of inflammation.

The wound was dressed on the 15th, 19th, 24th, and 28th.

1st December.—Wound entirely superficial, and reduced to about the size of a bean; dressed with boracic lotion. The splints and weights were removed, and the fracture of femur was found to be consolidated, with great thickening, and slight shortening. On account of patient having no home to go to, she was kept in the hospital longer than was necessary, and discharged on 4th January 1876. She was then able to walk with the aid of crutches.

CASE II.—*Compound comminuted fractures of left tibia and fibula. Necrosis of a portion of the tibia.*

A. M., aged seven years, admitted 17th September 1875.

History.—He was playing with some other children about a cart, some being in front on the shafts, and he with others behind, swinging the cart up and down. Those in front suddenly let go, and the cart tripped up, the projection at the back catching A.'s leg just below the knee and crushing it to the ground.

Condition on Admission.—On admission the leg was at once saturated with a solution of carbolic acid. On examining the limb it was found that there was a wound of a triangular shape, with its apex towards the knee, being two inches long by one inch broad, and situated about six inches below the joint. The tibia was fractured and comminuted, the lower end of the upper fragment protruded to the extent of about one inch and a half, pushing down the triangular flap of skin, and being partially denuded of periosteum. The fibula was fractured lower down, the upper fragment overriding the comminuted portion of the lower fragment of the tibia. There was comparatively little bleeding, the anterior and posterior tibials pulsating normally; the wound was full of dirt. The above examination was conducted under the carbolic spray.

Treatment.—The reduction of the fracture was effected, but it was found impossible to get the comminuted portion of the tibia in line with the rest of the bone, on account of a portion of the

tibialis anticus being nipped between it and the lower fragment. The wound was then carefully washed and syringed to get dirt and any septic matters away, dressed with protective carbolic gauze, and a gauze bandage over all. The limb was then fixed in side splints and hung in a Salter's swing-cage.

18*th September.*—There was slight staining of the dressings outside, so they were removed and reapplied under the spray; the wound was filled up with a blood-clot. Pulse 120; slept well, and eats well; is a little feverish, but complains of no thirst.

The dressings were reapplied every day for a week, as there was considerable discharge, and then changed only once in the four days. During the last four weeks of his stay in the hospital they only required to be changed once a week. The blood-clot gradually broke down and exposed that part of the tibia which was deprived of its periosteum.

1*st November.*—The splints were kept on till this date, and the wound had now become small and superficial, but with two sinuses leading down to the necrosed portion of the tibia, with which I had not deemed it prudent to interfere.

28*th.*—He was discharged from the hospital able to walk well, and recommended to show himself once a month, so that when the necrosed portion of the tibia became loose it might be removed. A. called at my house on the 16th February, and on examination with the probe I found the bone loose, and removed it at once. It measured an inch in length by half an inch in breadth.

CASE III.—*Compound fracture of the lower end of the radius.*

P. G., aged 61, admitted 15th November 1875.

History.—While at his work a pile of wood fell and knocked him down from a height of about six feet, the wood falling on him.

Condition on Admission.—It was found that he had sustained a compound Colles's fracture of the right radius; there was also a deep wound at the outer angle of the right eyebrow, and bruising of the right hip-joint.

Treatment.—The fractured radius was set and dressed aseptically by the house-surgeon (Mr Denniston).

19*th November.*—The dressings had not been disturbed till this date, when, as he complained of a little pain and heat at the seat of the fracture, I removed them, under the spray, and found the wound to be filled up with a blood-clot, which was firm and clean in appearance; there was a little bulging, and with a probe I opened a corner of the wound and allowed some bloody serous matter to escape. The wound was dressed, and he felt much easier.

3*d December.*—Dressed.

22*d.*—Dressed.

15*th January.*—Splints and dressings were removed; the wound had entirely healed up, and the fracture was firmly united. Patient dismissed at his own request.

During an interval of two months this compound Colles's fracture was only dressed four times. The second time, 19th Nov., four days after the first dressing; 3d Dec., fifteen days after the second dressing; 22d Dec., nineteen days after the third dressing. There was no constitutional disturbance during that time.

CASE IV.—*Compound fracture of right tibia and fibula.*

A. B., aged 14, admitted 13th January 1876.

History.—While working about a centrifugal machine for drying sugar, and which was revolving at the rate of 600 revolutions per minute, his right foot got caught in it, when he was twisted round suddenly and thrown down.

Condition on Admission.—It was found that the tibia and fibula of the right leg were both fractured obliquely about four inches above the ankle; a little lower down there was a wound two and a half inches in length, through which the upper fragment of the tibia protruded.

Treatment.—The house-surgeon reduced the fracture, dressed it aseptically, and put it in a Macintyre splint.

14*th January.*—Dressings changed; there was a slight oozing.

26*th.*—Dressed every three days since last report; almost no discharge; wound looking healthy, no blush in surrounding skin; patient seems perfectly well; temperature normal; appetite good, and sleeps well.

5*th February.*—Not dressed since last report, ten days ago. On removing the gauze, under the spray, it was seen that there had been no discharge, and therefore the protective was not disturbed, but new gauze applied.

19*th.*—The dressings and splint were removed, the fracture being united, and a starch bandage applied.

2*d March.*—Patient dismissed.

CASE V.—*Compound comminuted fracture of left tibia and fibula.*

A. M'I., aged 50, admitted 10th February 1876.

History.—While at his work in a woodyard, two tiers of large planks fell upon him. He was thrown down violently, the wood falling principally upon his leg.

Condition on Admission.—I happened to be in the wards when the patient was carried in, and on examination found that he had sustained a severe compound and comminuted fracture of left tibia, about six inches from the ankle; and to the inner side there was a wound of about an inch and a half square, through which about two inches of the upper fragment of the tibia protruded,

denuded of periosteum. Finding it impossible to entirely reduce this portion of the tibia without lacerating the surrounding tissues, a small portion of it was removed with the bone forceps. The lower fragment was comminuted, a portion of about one and a half inch square of the inner surface of the shaft being loose was removed, exposing the medullary canal (with the portion removed from the upper fragment) to the extent of about two and a half inches by one and a half broad. The fibula was also fractured about one inch higher up. The tissues in the neighbourhood were much bruised and swollen, the edges of the wound being ragged and ecchymosed. The anterior and posterior tibial arteries were pulsating normally. The fractures being reduced, the wound was dressed aseptically, and the leg put up in a Macintyre splint. In the evening, on account of hæmorrhage, the dressings were reapplied.

12*th February*.—Temp. 102·1°; pulse 92. Patient complained of pain at the seat of the fracture. Dressings removed, under the spray, side splints applied, and limb put in Salter's swing-cage. There was no discharge and no oozing of blood, the wound being filled up with a blood-clot. Two hours after the dressing and change of splints, patient slept. Temp. 101·1°.

15*th*.—Temp. 100·2°. Wound dressed.

17*th*.—Temp. 100·1°; pulse 89. Wound dressed; considerable discharge; the blood-clot has broken down, exposing that portion of the tibia denuded of periosteum. The wound looks healthy, there being no blush, and no smell from the discharge, which contains pus.

18*th*.—Temp. 102·3°; pulse 96.

19*th*.—Temp. 103°; pulse 96. Wound dressed, discharge copious, but aseptic. To get quinine, gr. v., three times a day.

20*th*.—Temp. 103°; pulse 84.

21*st*.—Temp. 98·3°; pulse 85. Feels greatly improved, and sleeps well.

22*d*.—Temp. 98·3°; pulse 84. Leg dressed, discharge much less.

26*th*.—Four days since last dressing; discharge about same quantity, appearance of wound perfectly healthy, granulations covering over the bone, cicatrix forming at the edge of the wound. The hand and foot sprays, through not working well, are too wetting, and too much of the irritating carbolic solution getting on to the wound, the solution of 1 to 50 was discontinued, and for the spray a solution of 1 to 100 was used instead.

28*th*.—Dressed.

2*d March*.—Dressed.

14*th*.—Dressed; discharge very scanty. A portion of the upper fragment denuded of periosteum is necrosing. Interval since last dressed, twelve days.

19*th*.—Dressed.

24*th*.—An abscess which had formed on the outside of the leg

at the seat of the fractured fibula, but communicating with the wound, was laid freely open.

26th.—Slight discharge, and the abscess healing up. From this date the patient improved rapidly, and the leg was dressed once a week; nothing special to remark.

26th April.—Both wounds are healed, enclosing a necrosed portion of bone.

3d May.—The splints were removed, and patient dismissed on the 27th.

CASE VI.—*Compound fracture of left tibia and fibula.*

J. M'A., aged 20, admitted 2d February 1876.

History.—Patient states that he fell from a stage to the ground, a distance of about sixteen feet, his left leg being doubled up under him.

Condition on Admission.—When examined, it was found that he had sustained a compound fracture of the left tibia and fibula, about the centre of the leg. The wound, which had been caused by the projecting end of the tibia, was about a quarter of an inch in diameter, with ragged edges. The patient had sustained no other injury, and complained of nothing but the pain in his leg.

Treatment.—The leg was dressed aseptically, and put up in a Macintyre splint.

22d February.—The limb not in good position, and the patient complaining of pain. On removing the dressing, the gauze was found to be soaked with bloody discharge, and the wound filled up with a blood-clot. There was no erythematous blush, but the limb was considerably swollen; dressings reapplied; leg put up in side splints, and swung in a Salter's cage.

1st March.—Dressings removed (interval of six days); gauze slightly soiled with red-coloured discharge; blood-clot becoming organized, no erythematous blush, and swelling quite gone.

14th.—Leg dressed (interval, thirteen days); there being no discharge, the protective was not removed.

22d.—Splints were removed; the wound completely healed; the blood-clot having become organized to fill it up; a starch bandage applied. It was now a simple fracture, and treated as such. He left the Infirmary on 1st May, able to walk.

CASE VII.—*Compound fracture of right leg; necrosis of a portion of the tibia.*

C. D., aged 44, admitted 21st March 1876.

History.—While at his work, some heavy pieces of timber fell upon him, knocking him down, and falling principally upon his right leg.

Condition on Admission.—Both tibia and fibula were fractured

about the middle of the leg; there was much bruising about the seat of fracture in front; a portion of the skin was nipped between the fractured ends of the tibia.

Treatment.—As this portion of skin was certain to slough, the limb was dressed aseptically, splints applied, and swung in Salter's cage.

26*th March.*—Dressings removed; an incision under the spray made through the sloughing skin, giving relief to some dark-coloured discharge. General health excellent; no constitutional disturbance. Temperature, normal.

11*th April.*—Dressings removed (interval, sixteen days); no discharge, so the protective not removed; no erythematous blush round the wound; no constitutional disturbance.

19*th.*—Wound dressed (interval, eight days). Discharge just sufficient to cover the protective; not much union has as yet taken place; owing to the force of the blow from the log of timber falling on the leg, there will be necrosis of a portion of the front of the tibia.

3*d May.*—Wound dressed (interval, fourteen days). Limb in good position; a small piece of exfoliated bone, about the size of a bean, removed from the upper fragment of the tibia; discharge very scanty.

25*th.*—The dressings were removed (interval, twenty-two days). The wound was healed, and good union had taken place; a starch bandage was applied. Patient dismissed 1st June. Five dressings only required.

CASE VIII.—*Compound comminuted fracture of left humerus.*

D. S., carter, aged 45, admitted 20th March 1876.

History.—While engaged at his work, guiding a horse and cart, laden with coal, down a steep hill, the cart came away with a run, and the extremity of the tram caught the patient's left arm, and jammed it against a wall.

Condition on Admission.—It was found he had sustained a compound comminuted fracture of upper third of the left humerus. The wound, about an inch long, was situated at the lower border of the pectoralis major, at its insertion to the humerus, and from which there was considerable hæmorrhage. On the finger being introduced, it could be passed for some distance in every direction, and the long head of the biceps was torn across; the bone, at the seat of fracture, was splintered longitudinally, and several of the splinters were loose; but, owing to the proximity of the vessels and brachial plexus, all of which were exposed, they were left undisturbed. The radial artery beat faintly, and the arm was cold.

Treatment.—The limb was dressed aseptically, put on a rectangular splint, and two bags of ice placed over the dressings

in the region of the wound. Evening, patient restless. Temp. 98·4°; pulse 88. Given solution of morphia, ʒi.

21*st March.*—Temp. 98·2°; pulse 88. Patient slept well and feels easy and comfortable. A copious sanguinolent discharge has soaked into the dressings. For about one inch round the wound, the skin has the appearance of sloughing; the discharge bagging, a counter-opening was made at the posterior border of the axilla, and a drainage-tube inserted. Evening temp. 100·2°; pulse 87.

22*d.*—Temp. 99·3°; pulse 82. Wound dressed; considerable sero-sanguinolent discharge coming from the drainage-tube, beyond the portion of integument, which is sloughing, as the direct consequence of the blow; the skin is healthy and of normal colour. Evening temp. 99·4°.

23*d March.*—Temp. 99·4°. Not dressed.

24*th.*—Temp. 99°. Dressed; discharge much less. Evening temp. 99·1°.

25*th.*—Temp. 99°. Not dressed. Evening temp. 98·4°.

26*th.*—Temp. 99°; pulse 75. Dressed; discharge slight; considerable ecchymosis around the limb.

27*th.*—Temp. 99°; pulse 75. Feels well, and has good appetite for his food. Evening temp. 99°; pulse normal.

28*th.*—Temp. 98·1°. Discharge slight; slough has separated, leaving a round gaping wound 2½ inches in diameter. Ice applications omitted, and drainage-tube removed.

29*th.*—Temp. 99°.

30*th.*—Temp. 98·4°. Dressed; slight discharge; wound looking healthy; limb in good position.

31*st.*—Temp. 99°.

1*st April.*—Dressed; also on 3d, 5th, and 8th.

11*th.*—Dressed; the discharge so slight, protective not removed. The wound had contracted very much, and the fracture consolidating.

15*th.*—Dressed; also on 19th, 23d, and 30th.

9*th May.*—Wound small and superficial; discharge inconsiderable and aseptic; good union of the fracture.

18*th.*—Dressings removed and not reapplied; wound healed; bone quite firm; and patient discharged on the 20th.

I am of opinion that surgeons connected with hospitals should publish the history and treatment of *all* their cases of compound fractures (not a mere selection of good cases), stating whether treated strictly aseptically or otherwise. Such would form a basis upon which the profession could judge as to the value of the "antiseptic treatment" in the hands of others than Professor Lister.

ARTICLE IV.—*Notes on Surgical Practice among the Natives in Shanghai.* By EDWARD HENDERSON, M.D., Municipal Surgeon and Health Officer, Shanghai. No. I.

WHATEVER reason there may be for supposing the native doctors in China possessed of some skill in the art of applying drugs to the cure of disease, it is at least certain that they are profoundly ignorant of nearly everything that relates to the principles and practice of surgery.[1] Hence it is that the startling effects produced by the unchecked advance of surgical diseases form a remarkable feature in the practice of the native hospitals. Surgeons that, like myself, have, after some experience of hospital work in Europe, become familiar with the waiting-rooms of native hospitals in China, are constantly struck by the unusual development of simple tumours, the large size attained by abscesses, the excessive dimensions of hernial protrusions, and the destructive results of neglected ophthalmias.[2] These sights are,

[1] I must refer those of my readers who desire information regarding Chinese Surgery to Williams's Middle Kingdom, in the second volume of which (page 179 *et seq.*), the whole subject is briefly reviewed ; also to the Pekin Hospital Reports by Dr Dudgeon, in nearly all of which interesting details will be found. While thus recommending records of fact, I cannot resist offering the following for the consideration of surgeons at home ; it is the translation of part of a serious article on Foreign Medicine and Surgery, which appeared in one of the Shanghai native newspapers (the *Shen Pan*) in June of 1872.

" In cases of wounds or broken limbs, the foreign doctors' assistance is invaluable ; but their remedies are, to say the least, violent. We ourselves have witnessed their treatment of injured limbs. When life is in danger, they administer to the patient a drug which deprives him of sense and feeling, and then with a saw proceed to sever the wounded portion. The patient suffers no pain ; but inasmuch as the man loses a limb, the remedy is at least a severe one, and does not compare with the treatment of a case by a Mongolian doctor, which the writer himself witnessed when on a trip to Peking. It was in the reign of Tao Kwang ; I happened to be passing a place called Fan Chia at the side of the river ; suddenly a despatch cart rolled violently past and accidentally knocked over a child. The wheel severed the leg in two parts at the thigh, and the severed portion flew to a distance of 20 or 30 paces. The child fainted away, and the parents immediately stopped the driver, requesting indemnification. It then happened that a bystander introduced a Mongolian surgeon, and I witnessed the following operation. He took up the severed limb, washed it, as well as the part from which it had been severed, sprinkled both parts with some medicine, dovetailed in the broken bones, and then covered the whole over with a medicine called Tricatiou-yoh. He further bandaged it over with cloth, and protected it by adding splinters. He also administered internal medicine which revived the child. About ten days afterwards, I was passing the same neighbourhood, and witnessed the same child romping with his companions in the market-place. Now if foreigners could add to their skill in surgery the skill displayed by our Mongolian friends, then under Heaven would there never be witnessed the spectacle of cripples amongst us."

[2] Down to the present date, ample confirmation of these statements may be found in the reports of the various native hospitals in China, but, of course, the number of these cases will diminish in direct proportion to the progress made by western surgery. Williams says, " The existence of tumours and unnatural

indeed, to western surgeons, for the most part little more than curious; but even on that account they have often seemed to me deserving of record, and it is a matter of regret to me now, that during my eight years of residence in Shanghai, I have so seldom availed myself for this purpose of the ready aid given by photography.

Judging from what I have myself seen, I feel warranted in stating that the Chinese—or, at least, the class of Chinese treated in the hospitals—are, as compared with Europeans, better subjects for surgical operations. With them, the repair of wounds is less frequently hindered by inflammation; they recover from severe injuries with greater certainty, and, I think, as a rule, greater rapidity, suffering throughout less than the usual (European) constitutional disturbance. These facts are perhaps best illustrated in the case of head injuries, of which the Chinese appear to be peculiarly tolerant; cerebral concussions and contusions, with or without fracture of the skull, are of frequent occurrence among the natives in Shanghai, as the result of falls from the roofs of houses or the masts of ships, and many of the recoveries that I have myself witnessed have been little less than wonderful, both as regards their rapidity and their apparent completeness.[1] I may instance also the results of compound fractures, which I feel certain are as a rule more favourable among the Chinese than among Europeans. In the practice of the Shantung Road Hospital, I have had opportunities of observing the progress of a large number of these cases, and my attention has frequently been drawn to the slight constitutional disturbance occasioned by an injury that surgeons justly regard as grave, and to the peculiarly satisfactory progress of repair. Illustrations of this tolerance of injury are also occasionally met with in other than strictly surgical practice, one so remarkable as to deserve special mention having come under my own observation, during the early part of the present year, in connexion with a case of operative midwifery. The case occurred in my friend Dr Johnston's practice. Application was made at the Native Hospital, of which Dr Johnston has charge, for a foreign surgeon to visit a native woman in labour in the settlement.[2] When seen, the patient appeared to be almost in

growths in great abundance and variety which the establishment of the missionary hospitals has brought to notice, is satisfactorily accounted by the inability of the native practitioners to remove them." In the Pekin Hospital Report for 1866, Dr Dudgeon writes, "In riding along the streets one's attention is often called to tumours, abscesses, and carbuncles of huge size."

[1] Dr Johnston, in the report of the Shanghai Chinese Hospital for 1869, says, "Fractures of the skull, compression and concussion of the brain, are not such fatal accidents in Chinese, as they usually prove amongst Europeans."

[2] Foreign aid is rarely sought in such cases; and never till, even to the slow and ignorant appreciation of the native midwives, the case has assumed a really desperate complexion. Two instances have come to my knowledge, during the past year, of native women in Shanghai dying in the course of unduly protracted labour undelivered; in both, a foreign surgeon was summoned at last, but in both, too late to be of service.

a dying state. She had been in labour, it was said, for four days, but when Dr Johnston saw her, uterine action had ceased. The right shoulder of a dead infant presented at the vulva, being unusually firmly impacted in the pelvis along with part of the trunk. Delivery by turning could not have been effected, and it was with considerable difficulty that Dr Johnston was able to reach and divide the neck of the child. The operative interference, at which I assisted, occupied much time, and when completed, the patient's condition was certainly very critical. On the fourth day, however, she had almost completely recovered, and opened the door for the doctor when he came to visit her. I might multiply examples, but refrain from doing so, partly because such matters are difficult to represent fairly on paper, but chiefly because the statements I have made are based rather on a general experience in practice, than on individual cases of a specially striking character, for which, doubtless, parallels could be found in practice at home. This toleration of injuries and surgical operations appears to stand in somewhat remarkable contrast to the readiness with which the natives undoubtedly succumb to epidemic sickness. Nearly every summer in Shanghai, we have evidence of a large mortality among the Chinese from choleraic diarrhœa, or some allied disorder, in which foreigners have little or no share; and in the native hospitals, the physician is from time to time struck by the rapidly fatal issue of cases of the kind, which, he feels convinced, could scarcely have so terminated had the patient been a European. That epidemic sickness should, as a rule, fall with severity upon the natives, and spare foreigners, is, however, scarcely to be wondered at, when the unfavourable conditions under which the natives are placed as compared with foreigners are fully understood; it is in the sum of these, rather than in any peculiar susceptibility of the native consitution, that the true explanation will, I believe, be found.[1] It seems, however, scarcely possible to explain the fatal termination of some individual cases without supposing a deficiency of vital energy peculiar to the native. As bearing on this part of the inquiry, it is of importance to note that, among the Chinese, constitutional symptoms do not generally so distinctly indicate the severity and extension of disease as among Europeans, and the foreign physician, chiefly practised in treating the maladies of his own countrymen, need not feel surprise if he occasionally fail to estimate their real value. The surgeon will manifestly be less embarrassed by this want of

[1] Dirt and overcrowding, it cannot be denied, are characteristics of the native city, and the native quarters of the foreign settlements. The dangers of contagion and infection being scarcely recognised by the Chinese, isolation and disinfection—properly so called—are matters altogether neglected. The foreign community of Shanghai is composed mainly of men in the prime of life, while among the natives there is the due proportion of infants and old people. That degree of poverty which limits food and clothing is unknown among foreigners, and is common among Chinese, etc.

correspondence between disease and its symptoms than the physician, having, as a rule, so many more distinct physical signs to guide him; but he also may occasionally be misled, as, for example, in the diagnosis of a strangulated hernia, or in his estimate of the internal damage done by a broken rib. In Shanghai generally, the type of diseased action is asthenic, but this is much more manifest among the natives than among foreigners, being also more distinctly seen in the foreigner the longer he remains in the country.

The influence that the mind exerts over the progress of disease is too important to be overlooked. In the native hospitals, I have heard death occasionally, and I think justly, attributed to a settled conviction on the part of the patient that his case was beyond hope; under such an impression, food is refused, the sufferer, to use his own "pidgin" English, "must wantche die," and dies accordingly. On the other hand, out of the profound ignorance of the coolie, and the awe with which he regards foreigners generally, there not unfrequently arise, on the part of the patients, feelings of confidence in the resources of the surgeons so unbounded as to place them much in the enviable position of children, who neither question the cause of symptoms nor feel anxiety as to results; a mental condition that, I think, may now and again be reckoned among the items contributing to the success of operations.

Throughout China, advice is given to the natives by foreign surgeons, as a rule, gratuitously, and this is the principle on which the three native hospitals in Shanghai are conducted. By far the greater number of the hospital patients belong to the labouring (coolie) class, it being as yet exceptional—in Shanghai, at least—for those of higher rank to seek the aid of a foreign doctor. Since, then, it is with the coolie class that the foreign surgeon has chiefly to do, the habits and physical development of the individuals composing that section of the population become interesting subjects for consideration. The average Shanghai coolie is rather an undersized man, possessed, however, of a strongly-knit frame and well-developed muscles, by means of which, and as the result of constant practice, he attains to a really surprising power of raising and carrying heavy weights.[1] In the Shanghai police force, besides

[1] In the Shanghai streets, coolies are constantly to be seen carrying, suspended to opposite ends of a bamboo laid across the shoulders, two chests of tea, weighing each 100 lbs.; bales of shirtings, weighing 440 lbs., are carried between two men, slung on a single bamboo; also, as chair-bearers, the coolies display surprising strength and endurance. It is, of course, impossible to estimate how much of this power is due to natural strength and how much to education. Women are occasionally to be met with in the country carrying loads that a foreigner finds it difficult to move. A strong Englishman, a friend of my own, told me that, when walking in the neighbourhood of Foochow, he met a country woman carrying, apparently without difficulty, a load which he was unable to lift, and which another Englishman with whom he was walking, an unusually powerful man, could lift, but could not carry for any distance.

the foreign staff, 115 natives are employed as constables. These belong to the coolie class, but must be regarded as picked men, being always carefully selected by the foreign superintendent, although not, like foreign recruits, examined by myself. A few months ago, I inspected twenty-four of these men, with a view to record something definite regarding their physical condition. I took my specimens from those that happened to be in barracks at the time of my visit. Twenty-nine were available, but of these I rejected five, as being manifestly above or below the average in development. Regarding the twenty-four examined, I noted the following:—

Age: Average, 31·8 years; oldest, 38; youngest, 25.

Height: Average, 5 feet $4\frac{1}{4}$ inches; tallest, 5 feet $8\frac{1}{2}$; shortest, 5 feet $1\frac{3}{4}$.

Weight: Average, $131\frac{1}{4}$ lbs.; heaviest, 148; lightest, 110.

Chest girth in nipple line: Average, $33\frac{1}{3}$ inches; largest, $36\frac{1}{2}$; smallest, 31.

The teeth of the individuals composing the labouring population are, with few exceptions, sound, regular, and strong; conditions indicating a healthy state of the digestive organs, or, at least, showing freedom from one well-marked tissue degeneration that a more advanced civilization seems inevitably to bring in its train.[1] The staple article of diet in this part of the empire is rice; of which an ordinary coolie will consume nearly a pound and a half daily, along with such addition of other vegetables, fish, pork, or fowl, as his means will permit.[2] Tea is the diet drink, to the exclusion of nearly all other liquids, and is consumed without the addition of milk or sugar. The Chinese regard water and cold drinks generally as unwholesome. Samshu, the native spirit, manufactured from rice, is at times drunk pretty freely by the coolies, but drunkenness is certainly not a vice of the natives in this part of China.[3]

[1] "It is to be remarked, that decay of the teeth is a much more uncommon occurrence amongst the Chinese than it is amongst Europeans" (Shearer, Customs Medical Reports for 1871). "In China, the teeth of the population at large are very sound" (Porter Smith, Hankow Mission Hospital Report, 1869).

[2] "The proportion of animal food is probably smaller among the Chinese than among other nations on the same latitude, one dish of fish or flesh, and sometimes both, being the usual allowance on the table of the poor. Rice, millet, and wheat furnish most of the cereal food; the first is emphatically the staff of life, and considered indispensable all over the country" (Williams). A short time ago, I had the ordinary food consumed by a healthy Shanghai coolie during the day carefully weighed. The man took three meals; one at eight A.M., one at noon, and one at five P.M. The same articles entered into the composition of all of these, the dinner and breakfast being identical, and the mid-day meal differing only in consisting of half rations. At each of the principal meals, he ate: of boiled and imperfectly-dried rice, 28 ounces (apothecaries' weight); of cabbage and beans together, 7 oz.; of fish, 3 oz.; of soup, 8 oz. To these were added a small quantity of oil and some flavouring condiments.

[3] Further north, the consumption of alcohol is probably greater among the natives. "The spirit samshoo the Chinaman drinks is a powerful agent in producing intoxication in the Europeans, as those who have commanded

In temperament, the Shanghai Chinaman is the reverse of what we understand by the term "nervous." He is little subject to emotional excitement, and either from ignorance or indifference—certainly without effort—displays decidedly less perturbation than a foreigner on the eve of an operation. When chloroform is withheld, he is found to bear pain with remarkable patience, but this endurance suggests rather the possession of a not very sensitive organism, than the exercise of that courage which enables the native of the west to submit to similar suffering without complaint.

Something remains to be said regarding those cachexias and constitutional deteriorations, inherited or acquired, which directly bring patients to the surgeon, or at least influence the result of the operations, that, for other reasons, the surgeon is called on to undertake. Struma and syphilis[1] stand, I think, first on the list, being together and separately, in China as in England, the cause of nearly all the bone and joint disease other than traumatic with which the surgeon has to deal. Scrofulous sores and strumous disease of glands and joints are as commonly seen in the native hospitals in Shanghai as in similar institutions at home; and syphilis in all its various phases is encountered daily among the

English troops in China are aware of, from painful experience of the amount of drunkenness amongst their men. But it does not appear to be so active on the Chinaman, who, though he imbibes considerable quantities, is very seldom met with in a state of intoxication" (Report of the Tiensin Native Hospital for 1861, by J. Lamprey, Surgeon 67th Regiment). "The north of China is anything but a teetotal country. In winter especially, a small quantity of whisky is drunk at each meal. The samshu is very coarse, and contains a large quantity of fusel oil, rendering it impossible to drink much of it at once. Immediately after taking it, the face and eyes glow with redness" (Dudgeon, Customs Medical Report 1871). I have myself frequently seen in the streets and tea-shops of Shanghai the peculiar flushing of the face that Dr Dudgeon describes.

[1] "Joint diseases, chiefly of a strumous character, have been extremely frequent" (American Mission Hospital, Shanghai, Report 1870). "Scrofula and its consequent affections are as common here as we might expect from a consideration of all the circumstances of the Pekinese, their poverty, etc." (Pekin Hospital Report 1869). In Shanghai in 1870, as health-officer, I made the subject of prostitution and its attendant evils a matter of special investigation. Regarding the prevalence of syphilis among the natives, I made the following note in my official report:—"The excessive prevalence of venereal disease among the natives is a fact to which all who have seen much of the work done in the Shanghai Chinese hospitals will bear testimony. . . . In 1868, no fewer than 880 cases of venereal disease were treated among the out-patients at the Chinese hospital attached to the London Mission, and 640 of these are noted as cases of syphilis. In 1869, at the same institution, 426 cases are noted among the out-patients, 381 of which are referred to as cases of syphilis. The numbers, with few exceptions, represent only the severer forms of these diseases, for, as may be readily supposed, the native doctors have considerable success in the treatment of complaints which, in their less formidable manifestation, tend so decidedly to spontaneous cure. It is painful to note the large number of apparently respectable married women who present themselves at our native hospitals suffering from syphilis." In the Report of the Shanghai Chinese Hospital for 1875, 357 cases of syphilis are registered as prescribed for during the year among the out-patients.

Chinese. It has been supposed by some that the latter disease displays unusual virulence in China; and Shanghai has to some extent, for this reason, been noted as a port especially dangerous to sailors. I have, however, myself seen nothing to confirm such an opinion. In the case of foreigners, the climate of China has probably an unfavourable influence on the progress of a malady whose effects linger so long in the constitution; but in the case of the natives, unless it be the general asthenic stamp I have already referred to, there is, I imagine, nothing essentially peculiar in the history of syphilis. An impression, however, exists in my mind that specific affections of the eye are commoner in Shanghai than at home; and something more than an impression that in Shanghai, among foreigners, syphilis is a not uncommon cause of premature arterial degeneration.

That peculiar constitutional degradation which results from malaria is largely represented in Shanghai, and stamps unmistakably a considerable proportion of the patients treated in the native hospitals. When at all distinctly developed, it constitutes a condition highly unfavourable to the success of operations. The tissues, imperfectly nourished by impoverished and unhealthy blood, are but little capable of repair, and innervation is so defective that the shock of any considerable operation is of itself often sufficient to destroy life. Opportunities of proving the truth of these observations have not been wanting to me, and I have found it both curious and instructive to watch the after progress of amputations unavoidably performed on individuals so circumstanced. In well-marked cases, there is no heat, no swelling, and but little pain, developed in connexion with these wounds; a scanty, semi-serous oozing takes the place of the normal discharge of pus; the stitches cut their way quickly through the yielding, often sloughing, skin, and the flaps falling asunder, show the pale flesh-wound, on whose glazed surface scarcely a granulation appears to attest nature's effort at repair. In this condition, the various preparations of bark, and alcoholic stimulants, are of signal service; bottled stout I have found to answer the double purpose of nourishment and stimulation well, and is often liked by the patients. The malarious cachexia is capable of great and speedy improvement in the hospitals, and it is therefore generally wise, and at the same time practicable, to defer operations when the health is manifestly affected in this way. The surgical operations with which this cachexia is directly concerned are paracentesis abdominis, ascites being a common form of dropsy in connexion with abdominal disease of a malarious origin,[1] and the various proceedings—amputations, ligature of arteries, etc.—undertaken in the treatment of elephantiasis. The diagnosis of the cachexia is, as stated in text-

[1] In the Report of the Shanghai Chinese Hospital for 1875, 72 cases of ascites are registered among the out-patients, and 20 cases are recorded as admitted to the wards, viz., 7 hepatic, 10 renal, and 3 splenic.

books, by the jaundiced tint, the stunted growth, and the anæmic condition; to these is generally added, in Shanghai, the febrile marasmus consequent on repeated attacks of ague. I have been by no means always able to distinguish decided splenic enlargement, true "ague cake" I have myself seen only twice. In these ill-thriven natives, I have observed a well-marked disposition to excessive pigmentation, causing the skin in the neighbourhood of ulcers and the scars of wounds to assume a peculiarly dark tint. Quite recently I saw this very distinctly shown in a case of disease originating in the bones of the knee-joints; the surface of the integument covering the joints was of a deep "chesnut brown," and the course of the enlarged veins leading to the diseased tissues was marked on the skin by broad lines of brown pigment.[1]

That loss of health which results from excessive opium-smoking is, of all others, the constitutional condition most to be dreaded by the surgeon in Shanghai. Patients so debilitated are little able to bear the shock of injuries or operations; their tissues possess little vitality, sloughing readily and healing slowly. They are restless and irritable; having little appetite for food or power of assimilating what they eat. In such subjects, I have seen sloughing of the cornea follow a trifling operation on the conjunctiva, and have often watched the feeble reparative power shown on the surface of wounds. The confirmed opium-smoker is readily distinguished in the waiting-room by his worn emaciated appearance, his look of premature old age, his sallow skin, blackened teeth, lustreless eyes, and expressionless features. If doubt be felt, a closer examination reveals the characteristic odour of the smoke, which clings to his clothing; while the forefinger and thumb, stained by the necessary manipulation of the drug, furnishes conclusive proof of the habit. I have not myself experienced that difficulty in obtaining a direct confession of opium-smoking of which others have complained.[2] Opium is certainly not invariably taken to excess, and little or no disgrace attaches, among men, to moderate indulgence in its use —at all events, in that class of the community to which these remarks specially apply. This is not the place to enter on a

[1] "I must note pigmentary discoloration in association with certain cachexias, to wit, syphilis, malarial fevers, Addison's disease, cancer, and leprosy, giving rise to an 'earthy hue' in the first, a yellow or chesnut brown in the second, bronzing in the third, a sallowness in the fourth, and a dull reddish-brown in the last" (Tilbury Fox, Skin Diseases, 3d edition, p. 400). As distinguishing the paludal diathesis, Trousseau attaches particular importance to the skin tint. "C'est une décoloration des téguments correspondant à une altération particulière du sang; ce n'est pas seulement la pâleur que nous trouvons chez les individus épuisés par des pertes de sang, ce n'est pas non plus la couleur verdâtre des chlorotiques, c'est une teinte d'un jaune bistre plus ou moins foncé" (Clinique Médicale).

[2] I may quote from Dr Dudgeon (Pekin Hospital Report, 1866)—"It is oftentimes very difficult to bring home the charge of opium-smoking;" it is, however, doubtful whether this is meant to apply to the general public or to the hospital patients.

discussion of the "opium question," but it is a fact that the opium-pipe is indulged in as a luxury by a very large proportion of the male labouring population, and that its moderate use does not affect health in any marked degree. How long, in the history of the individual, moderation is observed, is another matter; experience teaching that the confirmed habit is acquired with dangerous facility.[1] In dealing with confirmed opium-smokers, the surgeon will do well to limit the use of the knife to such cases as absolutely require his interference. During treatment, and especially after operations, the patient should be permitted the use of his pipe, or if, in preference, opium be given by the mouth, the ordinary dose must be very largely increased. In surgical diseases affecting the opium-smoker, the abrupt discontinuance of the habit would, I believe, almost certainly be injurious. Opium-smoking has certain advantages in the case of those who suffer from painful and incurable diseases. I have myself seen several cases of cancer among the natives in which relief from suffering was obtained by the use of the opium pipe. While I write, there is a case of the kind in the Shanghai Road Hospital; the sufferer will not at present consent to submit to the necessary operation, which involves amputation through the lower third of the thigh, and obtains relief from pain by opium-smoking, consuming no less than an ounce of the prepared drug daily.

Of induced unfavourable conditions, that impoverishment of the body which results from "want" is, perhaps, of least importance to the surgeon. The beggar class is largely represented in the Shanghai hospitals, and furnishes a large proportion of the operation cases. Such patients cannot be considered good subjects for

[1] The extended experience that Dr Johnston has had in the largest native hospital in the north of China entitles him to speak with authority on this point. He says (in the Twenty-sixth Annual Report of the Chinese Native Hospital)—"It is believed by many that the evils resulting from opium-smoking are much exaggerated. I do not think so; on the contrary, I believe that very few people have the slightest conception of the mischief done to the constitution by opium-smoking. Unfortunately, the principal sufferers are the working classes. In their case rapid deterioration of health, with loss of muscular power, soon follow the use of the drug, and, at no late date, disease, starvation, and death." Dr Dudgeon, who is also a well-known authority, and whose experience has been very great among the natives in Pekin, writes as follows (Customs Medical Report, 1871)—"The native tobacco is mild in the extreme, and probably few bad effects result from smoking it. . . . I am sorry that I cannot speak in the same terms of opium, of all our luxuries the surest destroyer of health, property, position, and life; of all our vices the most insidious and most difficult to throw off; one of the quietest and least obtrusive, yet that which beyond all others tells most seriously in the long-run on national life and property. This is hardly the place to enter a protest against opium-consumption, but in considering health and disease among the Chinese it is impossible to shut out this factor." Mr Penfold, the foreign superintendent of the Shanghai Police, tells me that when a native constable begins to take opium, he is of little further use in the force. The first signs of altered health are shown in the man's moral conduct; he becomes untruthful, careless, lazy, and dishonest.

primary amputations; but, provided the risks from loss of blood and nervous shock are safely tided over, they will, under the improved hygienic conditions with which the hospital surrounds them, heal as rapidly, and be as little affected by fever or inflammation, as the better-nourished and more robust. "Want" affects surgical practice directly in the production of much of the subacute and chronic affections of the eye—corneal ulcers, granular lids, etc.—and also as leading to gangrene of the extremities, a not uncommon result in Shanghai of poor feeding and exposure.

We see a good deal of true leprosy in Shanghai, but I can say nothing as to the surgical bearings of this disease. I have never myself had occasion to operate on a leper, nor have I ever witnessed an operation performed by another on an individual so circumstanced.

Chloroform is the anæsthetic hitherto almost exclusively used in the Shanghai native hospitals; ether has only occasionally been administered, and only within the past year. Although given very freely for many years, no death has yet occurred from chloroform among the natives in this part of China.

(*To be continued.*)

ARTICLE V.—*Sclerosis in Scattered Patches.* By Prof. CHARCOT, La Salpêtrière, Paris. Translated by THOMAS OLIVER, M.B., Preston, with M. Charcot's permission.

(*Continued from page* 327.)

Periods and Forms in Sclerosis in Patches.

AFTER having considered one by one the various elements which compose the symptomatology of multilocular sclerosis when there is question of a complete case, and one which has already reached an advanced period of its course, it is expedient to show by a general survey how these elements are grouped together and connected with the various phases in the different forms of the disease. This latter does not present itself actually—far from it—clad in all its attributes at every epoch of its development. At the commencement it may be constituted only by the union of two or three symptoms, and, besides, there are cases in which up to the fatal termination the delineation of the symptoms remains incomplete. Now, it is especially when the disease is still at a period near its commencement, or when it takes on an imperfect form, that it would be of consequence to be able to recognise it by the smallest indication.

I have proposed, in the progressive development of the malady, three periods: the first extends from the moment at which the

earliest symptoms appear, up to the time when spasmodic rigidity of the limbs reduces the patient to an almost absolute impotence. The second comprises all the time (generally very long) during which the patient, confined to bed, or hardly able to take a few steps in his room, preserves nevertheless the integrity of his organic functions. The third, in fine, commences at the moment when, at the same time as all the symptoms of the disease are aggravated simultaneously, the functions of nutrition suffer in a perceptible manner. *Apropos* of this last period, there will be occasion to notice the accidents which, in the usual order of things, mark the last period of the disease, and precipitate the fatal termination.

I. *First Period.*—The mode of invasion and the linking of symptoms present various aspects, which deserve to be pointed out to your special attention.

Sometimes it is cephalic symptoms which open the scene: thus, the patients begin by complaining of habitual vertigo, of diplopia more or less transient; gradually embarrassment of speech appears, and finally nystagmus. The union of these symptoms would compose a group already characteristic enough, and one which, even when the trembling caused by movements and the paresis of the limbs do not come sooner or later to be united with it, would yet allow of the diagnosis being established upon strong presumptions.

But such is not the commonest mode of invasion; most frequently it is the spinal phenomena which first appear; so much so, that during several months, and sometimes even during several years, the patients may present no other symptoms than a weakening, a paresia, more or less marked, of the lower limbs, tending to become aggravated in a slowly progressive manner, and to be extended to the upper limbs. In such a case, the situation of the clinical observer is necessarily one of the most difficult. For to sum up, the paresia of the lower limbs is a very ordinary symptom, and one common to a number of various affections. It presents itself, however, in multilocular sclerosis, as you know, with some peculiar traits, which might perhaps point out the way. Thus, however marked it may be (setting aside the exceptional case in which the lesion would predominate in the posterior columns), it is not accompanied by any disturbance of the sensibility, nor any appreciable change in the nutrition of the muscular masses; besides, there is ordinarily connected with it no functional disorder in the bladder or the rectum: in fine, it is not rare to see remissions produced, nay, even complete intermissions which have afforded grounds to hope for an ultimate cure. But it is clear that these indications, even with the concurrence of all the others, can only furnish information of rather a vague description. Certainty can hardly be attained, except where the special trembling, or some one of the cephalic symptoms, comes to be superadded to the spinal symptoms.

Thus far I have presented to you the invasion and the ulterior concatenation of accidents as slow and uniformly progressive. That, in effect, is by far the most frequent case; but it is important that you should know that, in certain circumstances (exceptional, it is true), the commencement may appear suddenly, unexpectedly, or be consequent upon some comparatively insignificant premonitory symptoms.

Thus the vertigo and diplopia having suddenly declared themselves, the paresia of the limbs and the stumbling may have been superadded to them at the expiration of some days, so that the malady is found, so to speak, at once established. This is what took place, among others, in the case of a young patient, Mlle. Vinch, whom some of you may have seen in our wards. At other times the beginning is marked, as in one of the patients of Valentiner, by a sudden invasion of paresia in one of the lower limbs; or, again, as in the case of M. Leo, and in one of my patients, whose history M. Vulpian has reported, an apoplectiform attack, preceded for several days or several weeks by vertigo and cephalalgia, and followed by temporary hemiplegia, inaugurates the illness.

Lastly, there is a case to which I will again call your attention, and in which the beginning is marked by an affection which is most frequently considered accidental and extraneous to the leading malady, though, in my opinion, on the contrary, it is really connected with it by a link not recognised till now. I allude to *gastric* or *gastralgic crises* (whichever you may choose to call them), which are sometimes intense, and accompanied by lypothemia, repeated vomiting, etc. They have several times opened the scene, and soon the usual symptoms of multilocular sclerosis have followed; besides, it is not unusual to see them reappear at several successive periods, and be intermingled with the symptoms during the first periods of the disease. In this class, a case published by M. Liouville, and that reported by M. Zenker, are good examples to quote. These accidents are so much the more worthy of notice, as we shall find them again with almost the same characters in other forms of sclerosis of the spinal cord, and, in particular, in posterior fasciculated sclerosis (*locomotor ataxy*), chiefly, however, in the initial phase of this affection. The gastric crises, coinciding or alternating with sudden flashing pains of the limbs, may be, in such a case, with diplopia, and perhaps a little titubation when the eyes are closed, the only actual symptoms of the disease in question, whose real character is at that time too often not recognised. These same gastric crises are met with, as we have observed (M. Duchenne, of Boulogne, and myself), in the form of *central subacute* or *chronic myelitis*, which produces the symptoms of *general spinal paralysis*. But I do not wish to dwell longer on this subject, which I expect to resume soon, and to give to it all the developments of which it is susceptible.

II. *Second Period.*—In general, from the end of the first period, multilocular sclerosis presents itself already marked by most of the symptoms which characterize it. These symptoms are aggravated and intensified during the second period, and there is superadded to them the spasmodic contraction of the limbs, with or without the accompanying spinal epilepsy, in consequence of which the patients, who had till then been still able to walk more or less effectually unaided, find themselves thereafter reduced to an almost absolute impotence, and confined ultimately to their room, or even their bed. The contraction which characterizes the commencement of this period is a phenomenon almost always slowly developed; it hardly ever shows itself, in general, until two, four, or six years after the appearance of the first symptoms of multilocular sclerosis.

III. *Third Period.*—The commencement of this last period is marked, as I have told you, by progressive weakening of the organic functions; want of appetite is habitual, and diarrhœa frequent, and soon there supervenes a general emaciation, which becomes more and more evident. At the same time, there is an aggravation of all the symptoms peculiar to the disease: the clouding of the intellect proceeds even to imbecility; the embarrassment of speech is carried to its height, and the patient no longer expresses himself except by an unintelligible grunt. Then the sphincters are paralyzed, and it is not unusual to see the mucous membrane of the bladder become the seat of an ulcerative inflammation. It is then that appear in the sacral region, and on all points of the lower limbs submitted to prolonged pressure, eschars, which sometimes assume enormous proportions, and consecutively all the series of accidents which are connected with this complication, such as purulent inflammatory foci, purulent or putrid poisoning, etc. Death soon ensues.

Most frequently life is still abridged by the intervention of some intermittent malady. Pneumonia, caseous phthisis, and dysentery may be reckoned on as amongst the most frequent of these terminal affections.

I have reserved, so as to mention it in quite a special manner, the appearance of some symptoms of *bulbar paralysis*, because they may, by becoming aggravated, precipitate the course of events, and bring on a fatal termination, even before the phenomena of the last period have manifested themselves. At the same time, as the speech becomes more and more difficult, there is produced, in the first place, a difficulty of deglutition, which, transitory at first, soon becomes permanent. Then, from time to time, there occur fits, more or less serious, of dyspnœa, and death may take place in one of these attacks. I have observed quite recently two cases which terminated in this way. At the autopsy, we recognised in both that a patch of sclerosis had invaded the floor of the fourth

ventricle, where it united the points of origin of most of the bulbar nerves.

After the details into which I have just entered, it appears to me useless to undertake the particular description of the various *forms* that multilocular sclerosis may put on. The *cerebral* and *spinal* forms correspond to an incomplete invasion of the nerve-centres by sclerosis; it is, if you like, the disease arrested in its development, in its progression, whether ascending or descending. The symptomatological series is, so to speak, curtailed by it; but the symptoms, considered singly, are not on that account modified. The first form is very rare, the second frequent enough, on the contrary. The *cerebro-spinal* form, however, represents the normal type, and it is it we meet with most frequently in the clinique.

Cerebro-spinal multilocular sclerosis fully accomplishes its total development in the space of from six to ten years: that forms a new contrast with paralysis agitans, whose normal duration is much longer. The spinal form usually allows more respite; it may terminate only at the end of twenty years, or even at a still later period.

Physiologico-Pathology.—Etiology: Prognosis and Treatment.

To finish this study, it remains for me to speak of the physiologico-pathology, etiology, and treatment of multilocular sclerosis of the nerve-centres. Unfortunately, the documents which I shall be able to appeal to, relative to these various points, are few in number, and imperfect, too, for the most part. I shall be compelled in consequence to lay before you very summary remarks.

The reason of the very singular mode of distribution which the sclerous islets affect in the various parts of the central nervous system is to us till the present completely unknown. Rindfleisch has affirmed that the point of departure of the formation of sclerotic foci is in the vascular system. According to him, inflammation of the walls of the little vessels which we meet with always at the centre of the patches in course of formation is the initial fact: from this central part the irritation is propagated to the reticulum of the neuroglia, and radiates in all directions. Evidently that would be again only staving off the difficulty. Besides, this predominant part accorded to the vessels in the evolution of the morbid process is anything but demonstrated. I am very much disposed to think, in accordance with my own observations, that the degenerations of the vessels, and those of the reticulum, advance *pari passu* in a parallel manner, and without influencing each other.

Be that as it may, given the seat of sclerous islets in the various departments of the nerve-centres, can we deduce from that the production of symptoms of which the aggregate constitutes the symptomatology of sclerosis in patches? It is possible, at least in part.

We have already remarked that the want of motor co-ordination, the loss of knowledge of position, and the flashing pains which are observed in a certain number of cases, may be, in these cases, referred to invasion of the posterior columns of the spinal cord. On the other hand, the habitual predominance of the patches of sclerosis on the passage of the antero-lateral columns, accounts, as I will demonstrate to you soon, for the almost constant existence of the paresia or paralysis of the limbs, followed sooner or later by permanent contraction. Nystagmus and embarrassment of speech are in connexion with the habitual localization of the patches in the substance of the protuberance and bulb. But a great number of other symptoms are more difficult of interpretation. Such is, amongst others, the peculiar tremor which shows itself in certain attitudes of the body, and in the exercise of voluntary movements. I have expressed the opinion that the protracted persistence of axis-cylinders, when deprived of their sheath of myelin in the midst of the sclerotic foci, plays perhaps an important part here: the transmission of voluntary impulses would still be effected by way of these denuded cylinders, but it would take place in an irregular spasmodic manner, and thus would be produced the oscillations which disturb the execution of intentional movements.

This resistance of the axis-cylinders is certainly not a phenomenon exclusively peculiar to multilocular induration, but it shows itself there more marked than in the other forms of sclerosis of the nerve-centres. It may, however, be appealed to, I think, for the slowness with which the paretic symptoms progress in sclerosis in patches, and for the long space of time that elapses before the period in which they give place to complete paralysis and permanent contraction.

What we know concerning the conditions which preside over the development of sclerosis in patches reduces itself to very little. It appears established, however, from the present, that the disease is much more common among women than among men. Thus, among the cases which I have collected in my early studies, three or four only concern men. The facts which have been published since then have not modified in any sensible manner this result. By combining with the eighteen cases which figure in the monograph of MM. Bourneville and Guérard, sixteen new cases, we have a total of thirty-four cases, of which nine were men and twenty-five women.

From these same documents, it results that it is a malady of youth, or of the first half of adult age. We have observed it in subjects aged from fourteen, fifteen, and seventeen years. But it appears most frequently to commence between the age of twenty and twenty-five. It rarely appears after thirty years. The age of forty years seems to be, on the other hand, the last limit that people affected with sclerosis in patches can attain.

With regard to hereditary influence, we would have to cite only

a single example, in which it would appear to have played a certain part. This example has been communicated to us by M. Duchenne (of Boulogne).

In the pathological antecedents of the patients themselves, we have in general only very vague indications. Hysteria figures among them in some cases; but most frequently we find mentioned only neuropathic accidents of no marked description—migraine from time to time, or neuralgia.

Among the *occasional causes*, we find several times pointed out the prolonged action of moist cold. In one case, the first symptoms were developed soon after a fall.

But it is circumstances of a moral kind which are most commonly referred to by patients. Prolonged grief, for example, that, among others, which an illegitimate pregnancy may occasion; or, again, the unpleasantness and weariness which a social position more or less false entails, such as is often that of certain governesses. This is what concerns women. As for men, the case before us is for the most part of unclassed people, placed outside of the general current, too susceptible and badly armed to sustain what we call, in Darwin's theory, the *struggle for life*. That is, in fact, a somewhat vulgar etiology, and which we find, so to speak, at the origin of all chronic diseases of the central nervous system.

The *prognosis* until now is of the gloomiest description. Will it always be the same? We hope that when the disease is better known, the physician will learn to take advantage of these spontaneous tendencies to remissions which are found prominently marked in a great number of cases. Besides, we must not forget that, for the present, the disease is in general only truly recognised when the lesions are already very profound, and nearly inaccessible to the influence of curative means.

After the preceding, shall I go on to speak to you at length on the therapeutics? The time is not yet come when this question can be seriously approached. I can speak to you only of a few trials made up till this day, and of which the results, unfortunately, have been in general not at all favourable.

Chloride of gold and phosphide of zinc appear to have rather exasperated the symptoms. *Strychnia* has sometimes made the trembling cease, but its influence has always been temporary. I shall say as much of the *nitrate of silver*. In several cases which I have observed, it appears to have had upon the trembling, and upon the paresis of the limbs, a very favourable influence, but one which, in truth, has not been long maintained. A formal contra-indication to the employment of this medicine would be the existence of permanent contraction, and, above all, of spinal epilepsy. The employment of silver nitrate would, in fact, almost certainly have for its result exasperation of these symptoms. *Hydrotherapeia*, in one case, seems to have produced a transient impression; in another, on the contrary, it has completely failed.

Arsenic, belladonna, ergot of rye, and *bromide of potassium,* have been equally administered in sclerosis in patches without any marked benefit. I will say as much for the application of *faradization,* and of the employment of the *continuous current.* But, with reference to this last agent, it is important to have recourse to new experiments before delivering a decided opinion on the question.

ARTICLE VI.—*On Salicylate of Quinine as an Antipyretic.* By J. GRAHAM BROWN, M.B., Resident Physician, Royal Infirmary, Edinburgh.

AT a time when the antipyretic treatment of various diseases is being so strenuously advocated, it seems important to determine what means we have at our command to produce the desired depression of temperature. Various salts of the alkaloids of cinchona bark have been used for this purpose, but attention has not been directed (so far as I can ascertain) to the salicylate of quinine, which seems to be very certain in action as an antipyretic.

This salt is prepared by the action of salicylate of soda on sulphate of quinine. It is insoluble in water, but dissolves readily in certain acid solutions, and tolerably easily in cold, still better in hot, alcohol. In the cases in which it has been administered, the dose has ranged from ten to forty grains, according to the age of the patient and the mode of administration, thirty grains in most cases being sufficient. Its antipyretic action usually begins in about an hour if it has been administered by the mouth, and continues for some hours subsequently. In some cases the temperature has fallen as much as five degrees in the course of three or four hours. Simultaneously with this antipyresis the pulse becomes slower and softer, the respirations also diminish in frequency, the skin becomes cool and moist, and generally the condition of the patient is much improved. He expresses himself as cool and comfortable, and sleep usually follows.

The action of salicylate of quinine is free from the profuse perspirations which attend that of salicylate of soda; and, on the other hand, the ringing in the ears and the deafness, which are occasioned by full doses of sulphate of quinine, are hardly noticed after the administration of salicylate of quinine, if an overdose be not given. The vomiting, which large doses of sulphate of quinine so often produce, is entirely absent after the exhibition of salicylate of quinine, nor has albuminuria ever been noticed.

With regard to the mode of its administration, it may be given by the mouth either dry (in wafer-paper) or suspended in mucilage or in water; but in severe cases (especially in enteric fever), it is best given as an enema, suspended in mucilage, with a small quantity of laudanum to soothe the mucous membrane of the

rectum. In this case, its action is not so rapid as when given by the mouth, but in about two hours the effect becomes apparent.

The detection of salicylate of quinine in the urine is very simple, the addition of tincture of perchloride of iron giving a beautiful purple colour.

Binz has shown that sulphate of quinine possesses the power of arresting the motions of the white blood-corpuscles, and I have been able to observe that salicylate of quinine also restrains their amœboid movements. And, in addition, the effect of sulphate of quinine in stopping the Brunonian movements of inorganic granules (described by Binz, *vide* Berl. Klin. Wochenschr., 1871), I have also seen to be possessed by salicylate of quinine.

The temperature charts appended to this paper speak for themselves. It is only desirable to point out the necessity of knowing at what time of the day the highest temperature occurs, in order, by giving the salicylate of soda some hours previously, to check the pyrexia before it reaches its maximum.

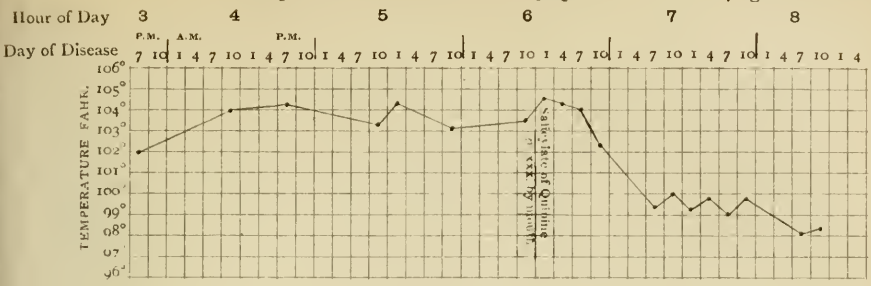
It is to the courtesy of Dr Grainger Stewart that I owe the opportunity of making trial of this drug.

ARTICLE VII.—*Arsenic in the Treatment of Skin Disease:* Being a Review of a Paper in the *New York Medical Journal,* August 1876, by L. Duncan Bulkley, A.M., M.D., Physician to the Skin Department of Demilt Dispensary, New York, "On the Use and Value of Arsenic in the Treatment of Diseases of the Skin." *With Original Observations and Cases,* by ALEXANDER HENRY, M.B., Assistant in Materia Medica at the University, Edinburgh.

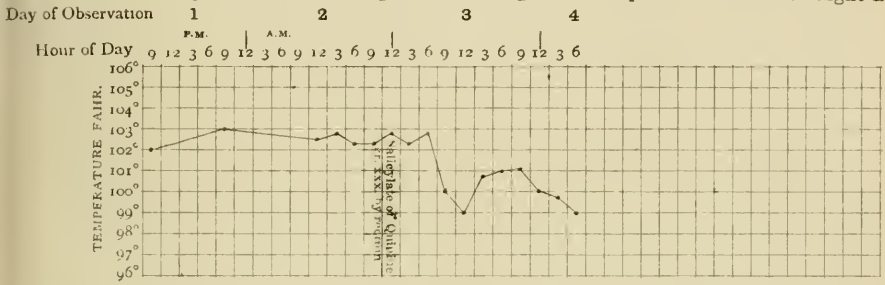
DR BULKLEY begins his paper by saying, "There is probably no empirical remedy in medicine better known or more frequently prescribed than is arsenic in the treatment of diseases of the skin, and yet I venture to state that there is no remedy whose action is so little understood, and withal whose effect is more uncertain, than is that of the same drug, as generally used; for, when we consider diseases of the skin as a class, without any special reference to the individual case or the diagnosis, arsenic is not only useless in a very large share of the cases, but is very frequently absolutely harmful.

"The subject has presented itself thus to my mind, because in my practice it has been very uncommon for me to meet with a patient, even with eruptions which have proved to be parasitic or syphilitic, who has been previously treated by general practitioners, who has not taken arsenic, and it is very commonly the failure of this supposed specific which has led the physician to seek the consultation.

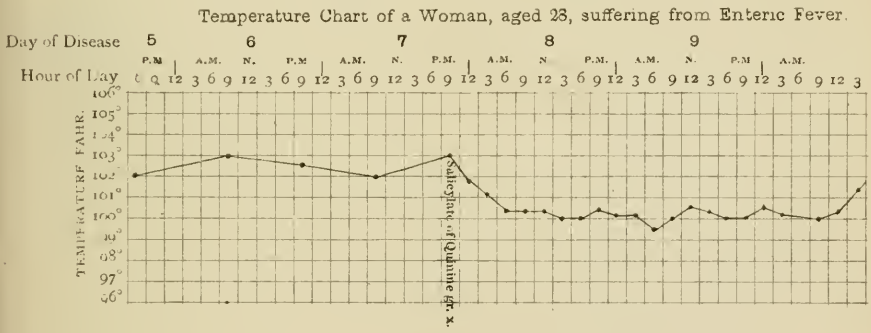
Temperature Chart of Case of Erysipelas in a Woman, aged 50.



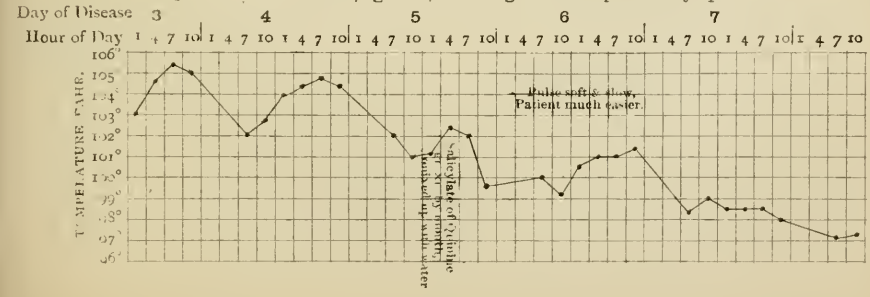
Temp. Chart of a Man, aged 65, suffering from Croupous Pneumonia of Right Lung.



Temperature Chart of a Woman, aged 28, suffering from Enteric Fever.



Temp. Chart of a Woman, aged 30, suffering from Idiopathic Erysipelas of Face and Head.



"Before speaking of the true value of arsenic in the treatment of any disease of the skin, I must, therefore, insist upon the absolute necessity of accuracy in diagnosis as the very first step toward success in treatment; for affections of this great organ, the skin, are not a unit, as the practice of so many would seem to indicate, but they are more diversified than those of any other portions of the body, and require treatment as different as the pathological states and etiological factors are various. To prescribe arsenic, therefore, because the skin is affected, is as unwarranted as it is to seize upon any other empirical remedy, and to administer it in each and every disease to which any other special organ is subject. . . .

"Although now so generally known in connexion with the treatment of diseases of the skin, the use of arsenic in this class of affections is not a gift of the ancients—indeed, it dates back less than one hundred years—and those to whom its general introduction was principally due have passed away only within the memory of many now living, as Hunt, Emery, Biett, and others. An essay on the action of arsenic would not be complete without the mention of the name of Girdlestone, who was almost the first to suggest its use in diseases of the skin; nor should the impetus given by Begbie's paper on the physiological effects of arsenic be overlooked.

"The very general use into which arsenic has come is attributable, I think, to three causes: first, to the very general desire which naturally exists in the minds of all to find some remedy which is a specific for a certain disease or class of diseases, the history of medicine being made up of successive attempts at finding specific remedies; second, to the physiological effects of the drug as observed in the coats of animals to whom it has been given, which, as is known, become sleek and glossy, and also in the clear skin of the arsenic-eaters of Styria, where the practice of consuming this drug as a condiment and stimulant has been verified by recent observation; the third cause is, the very favourable reports which have been made from time to time as to the effects of arsenic in *certain* diseases of the skin, and inferentially it has come to be prescribed in almost all affections of this organ, partly from carelessness in diagnosis and partly in the vain hope that in some way or other, mysteriously unknown, it would modify the eruption.

"That arsenic has a very decided effect upon the epithelial elements of the body there can be no question, both from physiological and therapeutical evidences; the silvery tongue after its long continuance, which results from the abundant growth of the epithelium obscuring the normal coloration, and its effects on the hairs of animals, are instances of this, as also its therapeutic effects in scaly diseases of the skin. But it is also claimed and demonstrated pretty conclusively that arsenic influences greatly the circulatory system, as is shown by the increased feeling of warmth in patients taking it, and it is said to give increased strength and augmented frequency to the pulse; it is also well known that the

first indication of the full physiological action of the drug is the congestion of the conjunctiva, and fulness about the face and eyes.

"There is every reason, however, to believe that arsenic acts primarily through the nervous system, and that the changes induced in the skin and vascular system are secondary to this—an opinion which is shared by many, and which finds support in its very serviceable action in certain nervous diseases,—chorea, neuralgia, asthma, etc.—and also in its effect in malarial disease. Those who have studied its action in diseases of the skin also agree that its results are obtained by virtue of its neurotonic principles. Dr Allbutt says, 'Arsenic in my hands has been certainly and regularly efficacious in those skin-diseases which on other grounds I referred, or was disposed to refer, to the class of cutaneous neuroses, while in other skin-affections it has been inert or injurious.' Although I cannot subscribe wholly to this, I believe most firmly that the results from arsenic are obtained by virtue of its action on the nervous system, and I have elsewhere shown the very great dependence of many, if not all, skin-diseases upon structural or functional derangement of the nervous portion of our organism; but I also believe in the value of arsenic as a general modifier of cutaneous nutrition, and, as will appear later, I regard it of the utmost service in many of the diseases of the integument, even where no nervous elements can be found. . . . A single point needs first to be considered, and that is, the element of time. Arsenic in medicinal doses is slow in its action, and is therefore suited for chronic diseases, and results are not to be expected from it at once; but, if any good is to be done, it is by a continuance of its effect for a not inconsiderable period of time. It is, therefore, of little service in the really acute diseases of the skin; and, as a corollary to this, I may state that it is directly contraindicated in inflammatory states, and must not be administered when these supervene in chronic cases."

But though the results of arsenic treatment are slow, Dr Bulkley regards it as "a mistake to think they must be waited for to the exclusion of other remedies."

The first skin disease considered is *psoriasis*. This is the disease in which arsenic is most generally used. But on account of the disease often disappearing, with some slight change of condition, as season, diet, etc., we may not therefore be warranted in ascribing a cure to our treatment in all cases; but still, if the eruption should disappear rapidly under treatment, the prescriber would be entitled to attribute a cure to the means used. Here Dr Bulkley speaks very decidedly.

"But can arsenic ever cure psoriasis? I answer most emphatically that it can, and that in proportion, first, to the age of the patient; second, to the duration of the disease; and, third, to the amount of previous treatment. 1. In very young subjects, I mean

ten or twelve years or under, psoriasis is comparatively curable, and, as a rule, need not run on, as I have known of its doing, from the age of five to that of fifty-five years, and arsenic should always be given fearlessly and patiently to children afflicted with psoriasis, and with very good probability of effecting a cure—I mean a *permanent* removal of the disease. 2. Recent attacks of psoriasis for the first time in persons of older years may be treated with arsenic with very encouraging prospect of success, but the remedy should be continued for a long time and very steadily. 3. In those who have had the eruption for many years and have received little or no treatment, I believe arsenic will accomplish the cure of the disease in many instances, although a previous trial of the remedy irregularly, and consequently ineffectually, diminishes very considerably the chances of success."

I have seen two cases of psoriasis, some time ago, in a boy 13, and a girl 10 years, which quite bear out Dr Bulkley's experience in the treatment of psoriasis about this age.

The case of the girl Mary M., aged 10 years. When first seen, the legs and arms on their extensor surfaces were almost covered with eruption, the normal skin seen only as small angular figures between the large patches, which approached each other very closely; in several places the patches were continuous psoriasis diffusa. This is a case of psoriasis vulgaris. The eruption had been out for nearly three years, and had gradually got more extensive. No treatment had been used previously. Under the use of three drops of Fowler's solution three times a day, the disease very rapidly disappeared, and in six weeks had almost gone; slight redness only marking parts of the circumference of several of the patches. In a few weeks more, very little trace of the former disease could be discovered. What was remarkable in this case was the rapid disappearance of an enormous accumulation of epithelium, heaped up in some of the patches to a considerable thickness above the level of the normal skin; and the cure effected *without* any of the physiological actions of the drug being produced. No external applications were used.

The case of the boy William B., aged 13 years. The disease in this case was not so extensive as in the girl's, the legs being principally affected. The patches were generally of large size, and at their edges were scars, evidently the result of scratching; but the patient did not complain of itching. The eruption had lasted nearly two years, and had been treated by another medical man, a year previous to his coming under observation, without success; he was then sent to the country for a whole year, and, as his friends told me, "the eruption was just as bad as when he was sent to the country." I was unable to learn what remedies had been used for the case.

Four drops of Fowler's solution, three times a day, was ordered at first visit (21st April); to be continued for several weeks. I saw

the patient occasionally for the first few weeks, the favourable progress of the case being marked at each visit.

At about four weeks from the beginning of treatment, the boy was said to be ill, and taking very little food. I then saw him (22d May), and found he was feverish, tongue slight fur. *23d May.*—Much in same state, but taking only a little milk and tea. *24th May.*—Worse than on the two previous days; complete anorexia, tongue pale red, breathing quickened, slight diarrhœa. *25th May.*—Still worse than yesterday; complete anorexia, tongue pale red, papillæ hid by the swelling of epithelium on dorsum of the tongue. No congestion of the conjunctiva was remarked at the time; breathing now more hurried, 40 respirations per minute; bright hectic flush on cheeks, anxious expression, temperature in the axilla 103·4° at 8 P.M.; diarrhœa as before, with slight indefinite pains over abdomen, not specially localized. *26th May.—In statu quo*, temperature 103·4°;[1] 8.30 P.M., temp. 103°. At 10 P.M., temp. the same; 12.30 A.M. (27th May), temp. had fallen to 101·4°. *27th May.*—Breathing less rapid, 30 respirations per minute; hectic still distinct, but much less marked than on 26th; took small quantities of fresh milk for breakfast, temp. 100·3°. 11 A.M.—At this visit, the guardian again spoke of the arsenic drops, and said he was afraid the medicine had not been so carefully measured lately, as at the beginning of treatment. I asked how much had been given. At first the doses were carefully measured by a minim measure tube, but latterly the dose was guessed. This guess was described as a "pour." A "pour" must mean a good deal more than the four drops ordered, and would very likely amount to from ten to twenty drops, and this quantity administered three times every day for about a fortnight. The temperature of yesterday morning, 10 A.M., 103°, and that of to-day, 11 A.M., 100·3°, both excluded typhoid; and the explanation of the large quantity of Fowler's solution taken, quite explained the case, which hitherto was rather perplexing. *29th May.*—Much better, breathing and temperature normal; took a fair breakfast of tea, milk, and bread; hectic all gone; bowels settled. Happily no ill consequences followed. The boy made a rapid recovery from his fever, etc., and, best of all, the inveterate psoriasis got a fright. A few days before the beginning of the fever the eruption had largely dis-

[1] At visit, 10 A.M., guardian of patient asked if the drops which were being given for the skin disease could have anything to do with the state of the boy, to which I answered, there was very little chance of that. I said the temperature yesterday was somewhat like typhoid fever. The temperature at 10 A.M., as stated, was 103·4°. This was quite different from typhoid; the temperature was too high, being the same as the previous night; if it had been typhoid, it ought to have been about a degree less. There was nothing in the lungs to account for the rapid breathing and fever; no head symptoms; the slight diarrhœa and diffuse abdominal pain, the pale red smooth tongue, all pointed to the organs of digestion. But at this stage, what could the fever be called?

appeared, and by the end of the attack very little remained; the site of the former patches being marked by slight redness and scaliness at the circumference only. No more arsenic was taken after the beginning of this attack.

This very bad case was progressing very favourably, even with the continued small doses, but more rapidly under the increased quantity expressed as a "pour," of the arsenical solution. Symptoms as described were beyond the physiological action one would wish to produce, when it is thought necessary to produce that action for the attainment of greater therapeutic good by such a remedy. The condition showed that a considerable amount of the poisonous action had been produced.

The temperature, it will be seen, was remarkable, being for three whole days at or above 103°. At 10 P.M., on 26th May, temp. 103°; at 12.30 A.M. (27th May), temp. had fallen to 101·4°; and at 11 A.M. (27th May), temp. was 100·3°; in thirteen hours, therefore, the temp. had fallen from 103° to 100·3°, equal 2·7° Fahr.; in two days more (29th) temp. was normal.

The arsenic treatment of this case lasted about five weeks. The external treatment in this case was tar ointment. Neither the silvery tongue, nor the congested conjunctiva, were observed.

Dr Bulkley quotes from Begbie: "I have never seen the loathsome scales of lepra or psoriasis drop from the skin and leave healthy cuticle till the eye and tongue manifested that the system was under the influence of the mineral, and that for days or weeks together." . . . Again, from Begbie:—"The curative properties of arsenic may be obtained in some instances before the physiological effects present themselves, but in order to secure its virtues as an alterative in a large class of chronic diseases which yield to its influence, it will be necessary to push the medicine to the full development of the phenomena which first indicate its peculiar action on the system. Arsenic as a remedy is too often suspended or altogether abandoned at the very moment when its curative powers are coming into play. The earlier manifestation of its physiological action is looked upon as its poisonous operation; the patient declares that the medicine has disagreed with him; forthwith the attendant shares his fears, the prescription is changed, and another case is added to the many in which arsenic is said to have failed after a fair trial of its efficacy."

Dr Bulkley, insisting on the necessity of continuing the remedy after the eruption has disappeared, says:—"To obtain the full measure of success with arsenic in psoriasis, it should not only be administered until the eruption entirely disappears, but it should be continued for a period thereafter, varying in proportion to the length of time the disease has previously existed—and this time measured by months, rather than by days or weeks. There will be difficulty in securing this, but of its value and necessity there can be no doubt."

Treating of eczema, the writer says, "Arsenic is capable of affecting certain cases of eczema in a most desirable manner, and occasionally is, I believe, essential to a cure." The case here given was a very severe one, of four and a half years' standing, in which there was evidence of great itching, which prevented sleep, and exhausted the patient very much.

Sixteen weeks of treatment with three drops of Fowler's solution three times a day, with, at the same time, cod-liver oil, iron, and bark, produced no improvement. Now, Fowler's solution alone was ordered, two drops three times a day, the dose being increased by one drop every other day, until ten were reached. A wash of bicarbonate of potash was used externally.

With sixteen days of the treatment, great relief was obtained, and the child slept well. The dose was now ten drops of Fowler; it was then increased to fifteen, three times a day. This dose was continued for three weeks, and by this time the eruption had almost disappeared. The fifteen-drop dose of Fowler was continued for four weeks longer, with no inconvenience, but when omitted, the itching returned. The dose of Fowler was then increased slowly to twenty drops thrice daily, but this produced nausea and vomiting. The dose was then reduced to five, to be gradually increased to fifteen drops. The case quite recovered.

This is a remarkable case with the proper result, and shows how well was arsenic borne by a child 4½ years old.

"In regard to the rules for the applicability of arsenic to the treatment of cases of eczema, it is indicated, first, as most writers agree, in nervous cases; that is, in those where there is a history of neuroses, either in themselves or in their families. This class of sufferers not uncommonly have some form of neuralgia, as gastralgia, etc., and the eruption has a decidedly nervous type; that is, it itches fearfully; sometimes it burns and smarts. But itching in eczema does not always indicate the necessity for arsenic, and this I consider one of the most important points to bear in mind in the management of this disease, namely, that itching is by no means always a primarily nervous affair, but may be due to the circulation of effete products in the blood, which excite the nerve irritation, as is instanced in the itching of jaundice, and in certain forms of disease of the kidneys. It is useless, then, to administer arsenic in such a case; indeed, it does positive harm, because by its action upon the liver it directly increases the difficulty; and one of the recognised rules in giving arsenic, which is very generally forgotten by practitioners, is that its administration is to be suspended when urinary derangements occur; or, at least, that they are to be removed before benefit can be expected from the arsenic.

"The second class of cases of eczema benefited by arsenic is that where there exists an arthritic history, past or present, in patient or family: gout, rheumatism, asthma, bronchitis, etc. Begbie was so impressed with this, that he says, 'Arsenic

is especially an alterative in the rheumatic diathesis; it is, if I may be allowed the expression, an anti-rheumatic.' . . . A third class of patients with eczema, where arsenic may be ordered with beneficial effect, are those where there is more or less of malarial element."

In "very tender years, or rather months," very good results have been got from arsenic alone. A boy of eighteen months was cured of eczema by four and five drops of Fowler's solution, thrice daily. Dr Bulkley has given arsenic with benefit to children from three and a half months upwards, with no ill effects. "Wilson has no hesitation in prescribing arsenic for infants a few weeks old. Dr M'Call Anderson says, that patients are more liable to catch cold under arsenic."

Arsenic in pemphigus is good treatment, and seems sometimes even to save the patient's life. Dr Bulkley speaks very favourably of arsenic in acne. I may mention briefly one case of acne rosacea in a young man, age 21. At intervals, the eruption appeared, and principally on the nose. If arsenic was given immediately on the first appearance of the disease, the effect of the medicine was apparent after two or three doses, and, by its continuance, the disease was stopped. But if given somewhat later, at the beginning of the pustular stage, the progress of the disease was stopped, but the eruption disappeared more slowly than if it had been allowed to go on to its natural termination; and if the remedy was not given till pus had formed in considerable quantity, the further progress was checked; but the disappearance of the spots was very slow indeed, the bright redness was replaced by bluish-red, which appearance continued for some time. The softness of the spots gave place to induration by the partial drying of the contents of the pustules; if these were now opened, the purulent contents could be squeezed out as cheesy masses of considerable firmness. If the contents were not evacuated, a long time would elapse before the parts returned to their natural appearance and consistence. A similar case, as regards appearance and age, could not be treated with this remedy, which was tried on several occasions, as a single drop of Fowler's solution caused severe griping pains

Hilton and Hunt are very positive as to the good results to be obtained from the use of arsenic internally in lupus exedens, and in the non-ulcerating form. Lichen agrius, the writer has found, "yields very promptly to arsenic;" in regard to lichen ruber, quoting Hebra, he says "that there is no internal or external remedy which has appeared to influence the disease to the slightest degree except arsenic, and, on the other hand, that this remedy has never failed in cases in which it has been given in sufficient quantity." Hebra administers the drug for from six to eighteen months, and for some time after the disappearance of the disease. Hebra gives very large quantities of arsenic in these cases. Mr

Hunt has found ichthyosis, xerodermia, sycosis (non-parasitic), yield to arsenic.

The diseases in which arsenic is useless:—"Syphilis in all its forms is uninfluenced by arsenic, except badly, and it should never be given unless called for by nervous symptoms, or as a stomach tonic. The parasitic diseases, animal and vegetable, are equally beyond the power of arsenic; but here there is an exception, namely, that in certain cases of tinea circinata and tonsurans, the ringworm of the body and head, and in favus, where the disease is old, general, and deep-seated, arsenic may, by improving the nutrition of the skin, render it an unfit soil for the vegetable parasite to flourish in; ordinarily, however, its administration is entirely unnecessary. . . . Purpura, true prurigo, herpes zoster, scleroderma, molluscum contagiosum and fibrosum, keloid, and nævus, are all uninfluenced by arsenic."

Marsden's method of using arsenic in epithelioma is to apply a paste of arsenic, two parts to one of mucilage, which at once destroys the vitality of the part, and prevents absorption of the poison. The paste is allowed to remain in contact with the surface for forty-eight hours, when poultices are applied every two or three hours, until the slough separates. But any one wishing to use Marsden's method should first read that authority on the subject.

In regard to the physiological effects, he says:—"There is always a physiological warning given by arsenic when therapeutically administered, which I do not find regarded by any one as one of its toxical effects, and that is the affection of the conjunctiva, with which all are conversant After the administration for a while of a full medicinal dose, say from three to five drops of Fowler's solution, or more—that is, $\frac{1}{40}$ to $\frac{1}{24}$ of a grain of white arsenic—three times a day, a prickling sensation is felt in the tarsi, and the conjunctiva becomes slightly inflamed, especially at its middle zone, and on the inside of the lower lid, and there occurs some puffiness beneath the eyes. Hunt, whose experience in arsenic probably surpasses by far that of any other practitioner, states that this slight conjunctivitis takes the precedence of more grave symptoms in about forty-nine cases out of every fifty. Gailleton also confirms this. Hunt further says, 'both the safety of the patient and the prospect of his recovery will depend upon the vigilance with which this fact inspires the surgeon. Ignorance of the existence of this safety-valve has caused many a cautious practitioner to repudiate the medicine altogether; and an acquaintance with this important sign would, doubtless, on the other hand, have checked the temerity which, in its results, has attainted with unmerited suspicion the reputation of a valuable remedy.'"

Again, "All observers who have studied the effects of arsenic in medicinal doses agree that the other symptoms liable to occur are as follows:—A certain amount of nausea, and occasionally vomiting, when an overdose is reached, or even a slight diarrhœa,

possibly a little fulness of the head, and constriction of the chest, and very occasionally tingling of the extremities, and anorexia. All these, however, are trivial, and pass away with the suspension of the remedy. . . .

"Hunt reports, from a survey of upwards of fifteen thousand recorded cases, and after having administered not less than five hundred gallons of arsenical solution in ten years' dispensary practice alone, that he has never seen any deleterious effects. Some of the patients took arsenic almost continuously for seven years together, and not one with a result to be regretted. Says he, 'I have now administered arsenic for months or years together, in many thousands of cases, and have watched in vain for the alarming effects attributed to its use. During more than thirty years' observation, I have rarely known it to produce any unpleasant effects on the system in a degree incompatible with perseverance in its use; and I have taken pains to make extensive inquiries among more than a hundred of my professional brethren most familiar with its use. The British Medical Association, in 1848, addressed questions to its members, and obtained replies from seventy-five practitioners who had used arsenic largely as a medicine, and whose cases amounted, in the aggregate, to several thousands. Yet, in their answers to special inquiries, it appeared that not one of these practitioners had ever found the medicine either fatal or permanently detrimental to health.' . . . Hunt states in italics, that '*the reputation of arsenic as a slow poison in medicinal doses, rests upon no evidence whatever.*' . . .

"Another illustration of the safety of arsenic, suggested by Mr Hunt, is as follows:—The medicinal dose of arsenic averages one-twenty-fourth of a grain, and the smallest recorded fatal dose is two grains, or about fifty times the amount generally required in medicine. There is no other remedy where such a proportion is borne; imagine the effect of fifty times the dose of any ordinary medicine, or two hundred grains of calomel, one hundred of opium, thirty ounces of sulphate of magnesia, fifteen or twenty grains of morphia, half an ounce of quinia, and so on."

Most authorities on the arsenical treatment of skin diseases agree that there is no danger in giving the drug in large doses for long periods of time, and that even to very young children. Bulkley says justly of Ringer's statements against the above general remarks:—"I am aware that Ringer gives a more serious picture of the effects of long-continued doses of arsenic, but I cannot imagine that he has reference to its therapeutic use by intelligent physicians; if so, where does he obtain his clinical evidence?"

The preparations of arsenic are too numerous. Hebra and Neumann prefer to give the arsenious acid in the form of pill; the pills of the former contain $\frac{1}{10}$ grain in each, those of the latter $\frac{1}{12}$ grain each.

Iodide of arsenic has been used. Of liquor arsenici et hy-

drargyri iodidi, Mr Hunt says:—"If there be any medicine more dangerous and unmanageable than another, it is that villanous compound of arsenic, iodine, and mercury, known by the name of Donovan's solution." Notwithstanding such condemnation, this preparation will still be used. Liquor arsenici hydrochloricus: this preparation contains four grains per ounce, and is about three times the strength of the original De Valengin's solution. Liquor arsenicalis, Fowler's solution, also four grains in the ounce.

These four preparations are all that need be mentioned; there are several others given by various writers, but what good can be expected from these? it is not the particular acid used to bring the arsenious acid into solution, or the alkali with which it is combined, that does any good; these are of use only for administration.

Dr Bulkley is very refined in his various modes of prescribing arsenic. With Fowler's solution he prescribes potash salts; with liq. sodæ arsen. he gives soda salts; with arseniate of ammonia, ammonia salts; with liq. arsen. hydrochlor., the mineral acids. It is to be feared that nothing can be gained by multiplicity of preparations of the one active drug, and a process of weeding out some of the less useful ones would be more grateful to the minds of the profession. Take Fowler's solution, which is arsenite of potash; in what way could it be imagined that the activity of this would be impaired by adding soda or ammonia salts, or even to add to the Fowler's solution one of the mineral acids? At first sight it looks an unchemical prescription. What carbonate of potass is free, is first neutralized by say hydrochloric acid; then this acid, being the stronger, would take the potash combined with the arsenious acid; this acid would be set free, but would be immediately brought into solution by the remainder of the hydrochloric acid present, which would form a hydrochloric solution of arsenious acid, which is the supposed composition of the liquor arsenici hydrochloricus.

The methods of giving arsenic of various authorities are described, but the ordinary way is all that need be noticed. Begin with small doses, and increase gradually until the first of the physiological actions is developed; then, having found the proper dose, continue at this, or one somewhat less.

Dr Bulkley insists on the necessity of looking strictly after the arsenic and the patient, in which I can readily agree, from the effects of careless dosage of the boy William B., age 13, page 425. Of hypodermic injections, he says:—"This method may prove useful in some cases of skin disease, as in severe pemphigus, threatening life, where the drug could not be given internally; also in other diseases where the stomach will not retain it, or where it fails to act when introduced by this channel."

Article VIII.—*On the Etiology and History of Leprosy.* By W. Munro, M.D., London, late of Cupar-Fife.

(*Continued from page* 249.)

So far as etymology can assist us, the foundations of the words for leprosy are all regular Chinese, with no evidence of foreign origin.

So far as the imperfect evidence goes, there is no proof at present available of the existence of leprosy in China more than one or two centuries before Christ. As far as mere negative evidence goes, it did not exist there 1500 B.C. This is supported by its being formerly very rare, and now very common, although of course it *may* have been indigenous, but increased by commerce with other leprous nations, as the Indians and Portuguese, and by the change in habits of the people, the ancient Chinese being compelled by law to be cleanly, which the moderns certainly are not. It is not possible, however, to trace its introduction to any historical event, as in western countries. It is a significant fact, however, that it is almost entirely confined to the south-eastern provinces, which have been from the earliest times in constant communication with India by sea,[1]—a much more likely mode of introduction than by land, considering the mountains that intervene.

Seeing that leprosy can be traced in India further back than it has hitherto been in China, I am inclined to the opinion (though I express it with very great reserve, in the face of discoveries that may yet be made by Chinese scholars) that it is not indigenous in China, but has been introduced, probably from India, by commerce. Had it been indigenous, it would probably have always been as common as it is now. Yet, as I have said before, it may have been so, and been increased during the present era, partly by importation, partly by the changed habits of the people.[2]

We have thus examined into the early history, so far as known, of leprosy in the three parts of the world where there might be any reason to believe that it is of indigenous origin in remote periods. In only two other places could it have arisen of itself, and there may be some doubt as to the reality of the leprosy in both, viz., New Zealand and Fiji; but as these have only become

[1] Humboldt's Cosmos, vol. i. p. 173.

[2] It is possible that it may have been introduced into China by some of the lost ten tribes, who appear to have reached China about 200 B.C. (Davis, The Chinese, vol. i. p. 16; and Hetherington, in Christian Miscellany, 1843, The Lost Ten Tribes of Israel.) The facilities for increase by subsequent commerce were great, the Chinese not being an exclusive nation themselves until the accession of the present Tartar dynasty, in 1644. In the ninth century of our era there were 120,000 Mahomedans, Jews, Christians, and Parsees in Canton, and Chinese ships sailed to the Persian Gulf. (Travels by an Arabian Merchant, in Kerr's Collection, vol. i. p. 52, *et seq.*; and also Davis, p. 20.)

lately known, the description of leprosy in them will be best considered further on.

One question in regard to the origin of leprosy among the Egyptians, Hindoos, and Chinese, may be asked. Is it not possible, seeing that all these peoples had their origin in Central Asia, that leprosy existed among them as among one people, and was carried with them in their migrations southward? What I have already stated, as to its absence among nomadic tribes, answers this.

I may say also, that the idea of the Chinese being a colony of Egyptians, or having very early commerce with them, partly founded on the finding of some porcelain Chinese jars in ancient Egyptian tombs, has been disposed of by Wilkinson, who shows satisfactorily that they must have been brought by Arabs.

It being impossible to trace the transmission of leprosy from India and China in early times to any other part of the world, in the present state of our knowledge (though it is possible that the leprosy of Thibet[1] may have been carried from China, and that of Yarkand[2] from India), we now return to Africa, the centre to which can be traced the leprosy of Asia Minor, Europe, and the New World, to note its spread thence.

Were the idea correct which has been mooted by some,[3] that Job's disease was leprosy, this would be the earliest notice of it out of Egypt; but seeing that the word *shachyn*,[4] used for a boil (Job ii. 7), is also used to indicate Hezekiah's disease, in which there was only one severe boil, probably a carbuncle, an acute disease (2 Kings xx. 7), and "the boil with blains on man and BEAST" (Exod. ix. 9), an acute disease breaking out suddenly on a whole population in Egypt; it is also translated "botch" in Deut. xxviii. 27. Thus, to those who have seen the severity of such diseases in the tropics, or experienced them in their own persons (I have had thirty boils on my body at one time, destroying sleep for a week), there is no need for believing that Job suffered from anything else than is stated in the English text—viz., that he had sore boils or a carbuncle. This agrees also with the Septuagint ἕλκος, and the French "ulcère malin," and was quite enough to try his patience, and even more calculated to do so than leprosy, which is by no means a painful disease, but the reverse.

There has been much discussion as to whether the leprosy of the Jews really was true leprosy, elephantiasis Græcorum, and the most varied opinions have been expressed in regard to the point; Dunbar[5] thinks it is now an extinct disease; Balmanno Squire[6]

[1] Travels in Tartary, etc., by Huc, vol. ii. p. 199.

[2] Lahore to Yarkand, by D. S. Henderson, p. 118.

[3] As Wortabet in Brit. and Foreign Med.-Chir. Rev., 1873.

[4] Gesenius (p. DCCCIV., שחין) translates it an inflamed boil, an ulcer, but thinks it was also used for elephantiasis, with "the feet swelling up," *i.e.*, Barbadoes leg. Jahn, in his Biblical Antiquities, thinks it was black leprosy or psora, but ψορα is itch or scab, not leprosy.

[5] Brit. Med. Jour., vol. i., 1873, p. 313. [6] *Ibid.*, p. 141.

thinks "white as snow" meant psoriasis; and Kitto,[1] from differences in the description, concludes that it was not identical with modern leprosy; but Jahn[2] believes that it is identical with the leprosy of Guadaloupe, but influenced by change of climate. Daniellssen and Boeck[3] say there can be no doubt that it was the elephantiasis Græcorum, modern leprosy. Schillingius[4] of Surinam is of the same opinion, and strongly opposed Reill, who held that "Lepra Judaica" was "omnino diversam a lepra Americana." H. V. Carter of Bombay[5] holds that it is an undecided point, though he seems inclined to identify the eruption of leprosy with Mosaic lepra. Erasmus Wilson,[6] Kaposi,[7] and Tilbury Fox,[8] consider that Jewish leprosy, "tsaraath," included modern leprosy along with psoriasis and other skin diseases. Fox points out that different kinds of "tsaraath" were differentiated by the Jews, as such cases as that of Naaman[9] were allowed to come in contact with others, not being unclean, as only suffering from lepra vulgaris, while others, as Uzziah,[10] was at once thrust out, being unclean, suffering from true leprosy. Jahn also identifies the white spot, "berat," spoken of in Levit. xxii., as morphea, or the eruptive leprosy of the present day. I do not believe with Wilson or Kaposi that all cases of morphea are really cases of a remnant of leprosy, but consider that their views as to Jewish leprosy are undoubtedly correct.

From the broad meaning of the word "tsaraath,"[11] "a stroke," and from the ideas that the Jews had of it as a stroke sent in anger by God—an idea shared in by other ancient nations,[12] and even by some at the present day[13]—the term would certainly be used to indicate any severe disease, being in fact a popular term, and as such used in a vague manner.[14] Thus, while from the symptoms mentioned in Leviticus, which it ought to be distinctly remembered (as it has not by Kitto and others,[15] who have looked at the want of symptoms seen in modern leprosy as proving the non-identity of the two) are only the premonitory symptoms indicating the beginning of the "plague of leprosy," other diseases being indicated, as one with the characters of leucoderma, mentioned under the

[1] Art. Leprosy in Dictionary.
[2] Biblical Antiquities, p 86.
[3] Traité, p. 2.
[4] Dissertatio de Lepra, 1778, Prolegomena, by Hahn, p. 14.
[5] Trans. of Med. and Phys. Soc. of Bombay, 1861, pp. 4 and 21.
[6] Lancet, 26th April 1856.
[7] Hebra, Dis. of Skin, New Syd. Soc. Trans., vol. iv. p. 189.
[8] Ed. Med. Jour., March 1866. [9] 2 Kings v. [10] 2 Chron. xxvi. 6.
[11] From צדע, Tsare, to strike, or, supplying the ellipsis, the stroke of the Lord (see Jahn, p. 186, and Gesenius).
[12] As by the Assyrians (Smith's Assyrian Account of Genesis, p. 124), the Persians (Herodotus, lib. i. c. 138), and the Hindoos. See Wise, pp. 196, 207.
[13] Leared, 1876, Morocco, p. 148.
[14] Josephus, quoting Moses, says, "*if any one* of their diseases" (*vide* Jos. against Apion, lib. i. c. 31).
[15] As Mason Good's Study of Medicine, vol. iv. p. 453,

name of "bohak,"[1] which do not cause uncleanliness. From a comparison of the description of those symptoms with those of the eruption of leprosy by Schillingius,[2] Cazenave and Schedel,[3] Kaposi,[4] Erasmus Wilson,[5] and chiefly Carter;[6] and also as the first symptom spoken of is a rising[7] (or tubercle), which is the most prominent manifestation of tubercular leprosy; I have no doubt that elephantiasis Græcorum was one of the forms, and probably the chief form, of the leprosy of the Jews. The description of one of the forms of Kushta by Atreya corresponds also to that of Jewish leprosy.[8]

Dr Milroy points out[9] that anæsthesia, the most important, but by no means the most prominent, symptom of leprosy, is not mentioned by Moses; but this argument is of no value, as anæsthesia is not found in the earlier stages, the only stage Moses required or desired to describe, and besides, might even, when present, be easily overlooked, as I found when trying to discover its existence in cases of joint evil or anæsthetic leprosy in St Kitts, in which I could hardly detect it; nor is the patient often aware of it himself till its existence is called to his notice,[10] as I have myself observed. It might just as well be said that the ἐλεφαντίασις described by Celsus was not true leprosy, which would be absurd, yet he says nothing about anæsthesia.

I may hereafter return to this subject, which requires much more space than can be spared for it here, but I think I have said enough for the present, except that had real leprosy arisen as a *new* disease among the Jews in historical times, we have too full an account of them for such an event to have passed unnoticed.

Thus, from the Bible, as well as from Josephus,[11] we can be certain that leprosy existed among the Jews and Egyptians at the time of the Exodus, or from about 1550 to 1300 B.C.[12] We hear of it again among them when the "four leprous men" discovered the flight of the Syrian army at Samaria,[13] about 892 B.C., and who

[1] בֹּהַק, Sept. ἀλφὸς, Lev. xiii. 39, translated freckled spot. This name is still retained by the Arabs (Niebuhr, Travels through Arabia, p. 278).

[2] Dissertatio, p. 7.

[3] Maladies de la Peau, p. 350.

[4] Hebra, vol. iii. p. 182; and vol. iv. p. 139.

[5] Diseases of Skin, p. 674; Lancet, 12th Jan. 1856; and Coll. Phys. Rep. on Lep. Appendix.

[6] Trans. of Med. Soc. of Bombay, 1862, p. 4.

[7] Lev. xiii. 2, שאת, Shat, a rising or tumour (Duncan). It has often been supposed to mean an eruption, but this is erroneous. The primary meaning is a rising up, something elevated. The French translation "tumeur" is a good one.

[8] Wise, *l. cit.*, p. 260, six severe kinds, and the Babu Mitra in the Asiatic Society of Bengal Proceedings, Aug. 1875.

[9] Coll. Phys. Rep., p. 230.

[10] Carter, *l. cit.*, p. 33.

[11] Against Apion, b. i. c. 26, 31, 34.

[12] Josephus makes it about 1550, the Bible 1491, and Brugsch (p. 175) 1300. The latter appears the most correct date.

[13] 2 Kings vii. 3; and Josephus, Antiquities, ix. 5.

were, be it observed, put out of the city; then the case of Uzziah, about 765 B.C., showing its continuous existence.

Passing from the Jews, we find it among the Persians, who had laws for the expulsion of lepers before the time of Herodotus[1] (about 450 B.C.); cases of leuce (λεύκη) or leucoderma were also expelled these cities. This *may* have had some connexion with the captivity of Israel in 721 B.C., and of Judah in 605 B.C., when they were carried into Assyria and Babylon, neighbouring nations to Persia.

I have searched for mention of leprosy among the descriptions of the remains of Nineveh and Babylon in the works of Layard, Smith, and Rawlinson, but have found none. As the records they translate, however, are entirely in the cuneiform character, which was looked on as sacred, and only to be used for commemorating great events, while writings in the common running character were used for ordinary purposes,[2] and as it is only the great deeds of conquerors, or the creation of the world (Smith), that is spoken of in such writings as are extant, no conclusion can safely be drawn as to the non-existence of leprosy among the ancient Assyrians and Babylonians from its not being mentioned.

Plutarch mentions, in his Life of Artaxerxes II., that his wife (and daughter) Atossa was a leper, about 380 B.C.

We have now considered all that is at present known of the ancient history of leprosy in Africa and Asia; we must now pass to the consideration of its introduction into Europe, and its slow spread north and west, trying to connect such spread, so far as may be possible, with events likely to cause it.

Passing to Greece, the first country in Europe in which it appeared, we look in vain for any proof of its existence there at the time of the Hippocratic writings There can be no doubt that by λεπραί (which always occurs in the plural), psoriasis, or some disease nearly allied to it, and not lepra Græcorum or true leprosy, was meant. The term simply meant scurf or scales. In the first place, ὄνυξι λεπροίσι (translated unguibus scabies), or scruffy nails, are mentioned,[3] while the expression ἐλέπρα τὴν κύστιν,[4] or scabby bladder, could apply to no symptom of modern leprosy. Secondly, λεπραί are always mentioned along with other slight diseases, such as lichen and impetigo.[5] Again, Celsus, in quoting, and almost translating, a passage in which λεπραί[6] are spoken of, uses the term pustulæ[7] as including them along with lichen and alphos, which he describes elsewhere[8] as the mildest form of

[1] I. 138.

[2] Layard, Nineveh and its Remains, vol. ii. 342.

[3] Hippocrates Opera, ed. Kuhn, tom. ii. p. 160, Περι ὕγρων χρῆσιος.

[4] Tom. ii. p. 554, Επιδήμιον το πέμπτον. Although this is not a genuine work of Hippocrates, still it shows the use made of the word about his time.

[5] Προρρητικον, ed. Kuhn, vol. i. p. 232, book 2d, last paragraph, and Αφορισμοι, tom. iii. p. 724.

[6] Aphorisms, as in last reference. [7] Lib. ii. c. 1. [8] Lib. v. c. 19.

vitiligo or leucoderma. Now, as he uses pustula to indicate a wheal or blain, he could not have been thinking of such a disease as leprosy when he wrote the passage referred to.

Galen also makes use of the term lepra as indicating a disease distinct from leprosy, as in the passage in which he says, "At pruritus in precipere affliget infectos psorâ vel leprâ,"[1] while elephantiasis is his name for leprosy; but as he follows Hippocrates, we can hardly think he would have changed the use of the word so completely. We are thus, I believe, on these grounds, entitled to conclude that by "λεπραί" the Hippocratic writers did not signify leprosy.[2]

Some have thought that the word "φθινικὴ" (phthinike), used by Hippocrates for phthisis,[3] should be read φοινικὴ (phœnice) or Phœnician, so that the Phœnician disease would be referred to; and Galen, in a passage I have seen quoted, but cannot find in his works, thinks that ἡ νουσὸς ἡ φοινικὴ meant elephantiasis. But then Galen himself did not seem to be sure of the meaning, while Kuhn's and other good editions give the word φθινικὴ, or phthisis; and even if it did mean leprosy, the mere mention of it in such a way does not in the least prove its existence in Greece at the time. I do not believe, however, that such a writer as Hippocrates could have passed over a disease of such importance, had it been known to him, with such slight notice.

H. V. Carter,[4] one of the best living authorities on leprosy, says that "Hippocrates and Galen state, that leuce sometimes passed into elephantiasis." I merely mention this to point out that it is an error, which may mislead others, as it did me for some time, and make them think that Hippocrates spoke of elephantiasis, which I have already stated is not mentioned by him. Carter gives no references; but the only passage in Galen he seems to refer to would hardly bear out his statement, as nothing more seems to be indicated than that leuce and elephantiasis arise from the same causes, Galen's words being,[5] "Nec aliter affectus hic (elephantiasis) gigni solet quam leuce." The cause he mentions

[1] De Symptomatum Causis, lib. ii. (Argentorata, 1604, p. 682).

[2] Against these arguments it may be said that Herodotus used the word λεπρήν, as also the Septuagint authors, for what was evidently leprosy; but they were not medical authors, making a strict use of the term. Herodotus simply used a name of a disease known to him to indicate a disease probably unknown to him except by description; while the Septuagint translators used the generic term, to translate sufficiently clearly for their purpose, another generic term in the original Hebrew. The same loose use of the word leprosy is seen in the writings of Cook, who mistook sea-salt on the skin for leprosy (Voyages, ii. p. 56); and of Ellis (Polynesian Researches, vol. ii. p. 19). I suspect that the leprosy spoken of by Dr Seeman in his Mission to Fiji, p. 338, so wonderfully cured by roasting with the sinugaga wood, was also simply psoriasis, or some allied disease, or leucoderma, as in Ellis's leprosy.

[3] Prorrhetics, at end.

[4] Trans. of Med. Soc. of Bombay, 1861, p. 16.

[5] De Symptom. Causis, p. 687.

is poverty of food. He elsewhere[1] says that they are "melancholic" diseases, arising from black bile. The first Greek author who decidedly mentions leprosy, under the name of satyria, is Aristotle. I may translate his words here,[2] to leave no doubt that it was really leprosy he meant: "The disease called satyria . . . . from a plethora of humor or air breaking out in the parts of the face, the countenance is like that of any beast and satyr." I cannot imagine myself any other disease these words could apply to as a general description, except tuberculated leprosy. Hirsch[3] doubts this, but gives no reasons for his doubts; while Daniellssen and Boeck say it could only be elephantiasis.[4] Aristotle does not say *where* he saw this leprosy; but as he spent all his life in Greece or the adjacent coast of Asia Minor, as from the description he gives (a very full one, considering that it is only given by way of illustration, in a work on the generation of animals) he must have seen the disease, it can hardly be doubted that when he wrote, about B.C. 345, or fully half a century after Hippocrates, leprosy, although still probably a rare disease, had found its way at least to the coasts of Asia Minor near Greece, and probably to the latter.

From this time onwards it seems to have spread slowly but surely in Greece and the adjacent countries of Europe. The words of Celsus, written in the early part of the first century after Christ, show this, and that at his time it was, and had evidently long been, common in Greece. He says—"Ignotus autem paene in Italia, frequentissimus in quibusdum regionibus is morbus quem *ἐλεφαντίασιν* Græci vocant! isque longus adnumeratur."[5]

Thus, we find that leprosy was known under the names elephantiasis and elephas, from a fancied resemblance to that animal,[6] and that this became its common name among them. Now this, I think, is a very strong argument in favour of its having been introduced into Greece only a very few centuries before Christ, as neither Homer nor Pindar use the word elephas (*ἐλέφας*) to indicate an elephant, but ivory, they not being acquainted with the animal itself. (Pindar's writings preceded those of Hippocrates by fully half a century.) Herodotus, writing about 446 B.C., or four years before the death of Pindar, was the first to use the word for the animal, and he only refers to them as existing in Ethiopia among other wild beasts.[7] He mentions horses, camels, and asses in the great expedition of Xerxes,[8] but no elephants.

Aretæus says that *some* call it leontiasis, but it is evident that elephantiasis was its common name in Greece.

[1] De Tumoribus præter naturam.

[2] *Περὶ Ζώων Γενέσεως*, iv. c. 3, from "*τὸ νοσήμα τὸ καλοῦμενον σατύριαν.*"

[3] *Lib. cit.*, p. 304. [4] *Lib. cit.*, p. 3. [5] Lib. iii. c. 25.

[6] See Aretæus, De Lepra et Causis Anat. Morb., lib. ii. c. 13, ed. Kuhn, Lepsiæ, 1828, pp. 174 and 182. Elsewhere, Aretæus calls it *ἐλεφάντος* and *ἐλεφάντα.*

[7] History, lib. iii. s. 114. [8] Lib. iv.

To sum up, then; leprosy appears to have been quite unknown in Greece up to the time of Hippocrates, or about 400 B.C. By Aristotle's time (345 B.C.) it had become slightly known, but was still rare; and before our era, probably two centuries or so, it had become common.

Now, up to the time of Cambyses, 525 B.C., Egypt, the country where we have seen leprosy had been so long endemic, was as much closed to the Greeks as Japan was to a very recent date to Western nations. In 650 B.C. the first Greek factory was opened in Egypt, and a hundred years later Greek mercenaries served in the Egyptian army; but till the conquest of Egypt by Cambyses, 525 B.C., Egypt was practically closed. Close after this came the conquests of Darius, and then of Xerxes, 480 B.C., who led, according to Herodotus,[1] a host of about six million people into Europe from all the nations of Asia and Africa under his rule, and when he retired left thousands behind. These two historical events, and especially the latter, have a close connexion with the spread of leprosy, which, it can hardly be too much insisted on, is essentially a slow disease. We will see hereafter that it seemed to take between one and two centuries to spread fully over Scotland, after it was in England; and it has taken nearly a century, even in these days of quick travel, to reach the Sandwich Islands. It cannot, therefore, be a matter to cause surprise that it was not known in the south of Greece in the time of Hippocrates, only three-quarters of a century after Xerxes had entered it, and abandoned part of his army in the north, while just what has taken place in modern times took place then. Half a century after Hippocrates it was noticed, and then gradually spread, and a century or two later was a common disease.

We will hereafter trace the spread of the disease throughout the world.

ARTICLE IX.—*Reports of Cases treated in Leith Hospital.* By W. A. FINLAY, M.D., Trinity.

(*Continued from vol.* xxi. *page* 1023.)

THE first three of the following cases illustrate the subject of acute necrosis. They occurred in children of a strumous constitution. These are generally the subjects whom the disease attacks, but it also occurs in old people. Erichsen remarks, "I have seen it occur as a senile disease in the tibia, the humerus, and fibula, in persons of an advanced age, from 65 to 70 years;"[2] and he adds, that in them it is sometimes mistaken for gout. The first of the following cases ended in disease of the joint, and of the cancellated texture of the head of the bone, necessitating amputation; the second, in

[1] Lib. vii. [2] Erichsen's Surgery, vol. ii. page 147.

separation of two-thirds of the shaft of the tibia, followed by the production of new bone.

CASE I.—Ellen Noble, æt. 10. Admitted 12th June. The patient, being in a weak state of health, had received a kick on the shin from a companion, two weeks before admission. The leg continued to be painful, and in a week the out-door resident surgeon of the Hospital was called to see her. When he saw the patient, she was suffering from extreme irritative fever, and there was a periosteal abscess over the tibia; this he freely excised, and allowed a large quantity of pus to escape. As the child could not be properly treated at her mother's house, she was sent to the Hospital on 12th June. The discharge from the leg increased in quantity, the knee-joint became swollen, and an abscess formed on the inner side of the joint. This abscess was not one of the joint itself; but, after it was opened, the pus could be squeezed down from the side of the thigh, affording an illustration of the tendency which exists to the formation of abscesses in the tissues surrounding inflamed joints. The child gradually became hectic, her pulse was quick, and her temperature ranged from 99° to 101°. She had profuse perspirations at night, and the purulent discharge became more abundant. In fact, she was becoming weaker day by day, and evidently could not survive long if the disease were not removed. Accordingly, I amputated above the knee, and from that time she gradually recovered, and is now quite well. On examination of the limb after removal, the shaft of the tibia was found to be almost wholly denuded of its periosteum, and the head of the bone to be carious; there was also ulceration in the knee-joint itself.

CASE II.—W. M'Goldrich, æt. 5. Admitted 15th July. In this case the knee-joint did not become affected; the boy's general health continued good, and two-thirds of the tibia separated and were removed; and the limb is now becoming firm and useful again, owing to the formation of new bone. It is an illustration of the most favourable ending to a case where there has been extensive acute necrosis.

CASE III.—W. A. Smith, æt. 7. Admitted 25th August. On admission, the patient was suffering extreme pain from inflammation of the tibia, which became especially severe during the night after his admission; his tongue was dry, and his pulse and temperature very high. There was redness and swelling over the tibia; indistinct fluctuation was felt when the leg was laid on its side. Next morning I made an incision of about three inches down to the inflamed bone, dividing the periosteum freely; the boy was under chloroform, and the incision was made under carbolic spray, and dressed antiseptically. A small quantity of pus escaped.

During the next night, the patient was still restless, but not in such severe pain as the night before; and on the day following, he was very much better, his temperature having fallen to 98°. At the second and third dressings of the wound there was absolutely no pus. Unfortunately, after the third dressing, putrid suppuration occurred in the leg. Every care was taken in the way of using the spray and carbolic lotion, and the limb was dressed exactly as it had been at the two previous dressings. The only reason I can think of for this untoward change having occurred is, that the case I had dressed immediately before this one was discharging septic pus—still, I dipped my hands freely in the lotion before touching the leg, and yet the discharge became septic. It shows the extreme care that is requisite for success in antiseptic surgery; since, even after taking great precautions, the putrefactive germs had gained access to the wound. After this, the discharge became very profuse, and the boy's temperature and pulse again became high. The case shows the marked influence which antiseptics have on the constitutional symptoms; and has impressed upon me very strongly the necessity for the greatest care in the application of them.

In Case I., the irritative fever which was consequent on the disease at its commencement, was so great as to place the child's life in jeopardy, yet at that period it would have been improper treatment to amputate the limb, as experience has taught surgeons that, in these cases, amputation during the continuance of irritative fever lessens the patient's chance of recovery. In treating of this disease, Professor Spence states, "In cases of acute necrosis, when the patient is suffering from irritative fever, with symptoms almost of blood-poisoning, and when the intense suffering, gastric irritation, and debility, leave us little hope of his being able to pass through the long process required for throwing off the dying bone, amputation presents itself as a chance of relief, but I would strongly guard you against giving way to the temptation."[1] Syme also says, "The treatment of necrosis seldom admits of active measures on the part of the surgeon in its early stage. . . . Finally, in case the patient proves unable to bear the long-continued and exhausting process requisite for accomplishing the cure, he ought to be relieved by amputation."[2]

I offer the two following cases as instances of conservative surgery. In Case IV., after the excision of the elbow-joint, it was doubtful whether the large ulcer left would heal as it eventually did; in Case V., it is to antiseptics that the patient owes the preservation of his foot. In both cases the question of amputation had to be seriously considered.

[1] Spence's Surgery, page 244.
[2] Syme's Principles of Surgery, page 211.

CASE IV.—*Primary Excision of Elbow-joint.*—E. Maclaine, æt. 2. Admitted 14th June. This little child had fallen on the tramway when a car was approaching; the wheel of the car had gone over the posterior part of her left arm, stripping the skin off from within one inch and a half of the wrist to within two inches of the shoulder, from the posterior part of the arm and forearm. There was also a fracture of the external condyle of the humerus. With the kind assistance of Mr Annandale, of Edinburgh, and Dr Henderson, of Leith Hospital, I excised the elbow-joint, and brought the skin as closely together as was possible. Rather more bone was removed than is necessary in ordinary cases. The case went on very favourably after the first day or two. The ulcer gradually contracted, and the child was dismissed on the 31st July, there being only a small superficial ulcer, which has since healed. The motion of the arm at the elbow is very free, it can be fully extended; and although flexion cannot be fully performed on account of the contraction inseparable from the healing of so large a sore, yet the child is able to use her arm freely.

CASE V.—John Grant, seaman, æt. 45. Admitted 4th August. On the day of his admission the patient had his feet jammed between a wall and a cart loaded with a ton of iron rails. He thus sustained a compound fracture of the right ankle-joint, besides severe bruising of the skin about and above the right ankle. This bruising was so severe as to lead to a large slough of injured skin. The great toe of the left foot and a considerable piece of the skin of the dorsum of the left foot were also so severely crushed that they ultimately sloughed and separated. The external malleolus of the right ankle and the lower end of the shaft of the fibula were extensively comminuted. The wound over the fracture was four inches in length, and afforded free admission to the ankle-joint. The ankle was partially dislocated inwards. The tibia was not broken. The wound had been exposed to the air for four hours. After examination I told the patient that it was only at a risk to his life that we could try to save his foot, and he elected that we should make the attempt, saying that he would rather die than be maimed for life. Accordingly, I injected carbolic lotion (1 to 20) very freely into the wound and joint, and removed the broken fragments of bone, and the fractured ends with cutting pliers. All this was done under carbolic spray. Then the protective and gauze were applied in the usual way, and over all a pair of Gooch splints were secured.

It would be tedious to give an account of the daily progress of this case; it is sufficient to state that the patient never became dangerously ill, and that the discharge from the wound, although purulent, has, in spite of the extensive sloughing of the skin, been kept antiseptic up to this date (14th Sept.) by careful dressing by the residents, Dr T. D. Wilson and Mr Daruty. The patient

takes his food well, and his general health has continued good, and there is every reason to believe that he will have a very useful foot. Although the case is still in process of cure, it is interesting in regard to the subject of amputatation in injuries of the kind. Before antiseptics were known, it was rare that, even after a great risk to life, the foot was saved in cases of compound fracture into the ankle-joint. So much was this the case, that Professor Spence says—"In compound fractures and dislocations about the ankle, I am convinced that, whilst we may occasionally obtain very good results, in the greater proportion of cases the results are so disastrous that, as a rule, amputation is better than saving the limb. In many cases the external injury is apparently very slight. The external wound may be small, and we may with little force be able to replace the parts in position. Splints are applied, and the case may go on very well for a week or two, but then irritative fever sets in, with abscesses and erysipelatous action about the parts. Even in cases which ultimately do well, the bad symptoms come on, causing great risk to life. I have had five very successful cases of this injury in adults, but on looking back to these cases, and considering the dangers the patients ran, and the long time they took to get well, I have come to believe that, as a general principle, it is safer to amputate the foot."[1] The injury in the case of Grant was very extensive, and the progress of the case may be held to prove that in all ordinary compound fractures of the ankle-joint, if the wound can be kept antiseptic, the foot can be saved.[2]

CASE VI.—*Excision of Cuboid Bone.*—Mary Montgomery, æt. 4. Admitted 19th August. Patient had suffered from the disease for four months. On admission there was a sore over the cuboid bone of right foot, through which the probe passed into the interior of the bone, which was soft and carious. On the 28th August I removed the cuboid bone, together with its two metatarsals, which were during the operation found to be taking on diseased action at their proximal ends. It has been questioned whether it is a proper proceeding to excise the cuboid bone in cases of caries, it being supposed that the disease is sure to return in the other bones of the tarsus sooner or later; but it certainly would appear to be unnecessary to remove the foot on account of the risk of return of the disease. Persons affected with caries are of course liable to a return of it after removal, but it may return in other situations as well; and the fact of the cuboid bone having been

[1] Spence's Surgery, vol. i. p 363.

[2] During the six weeks that have elapsed since the above was written, Grant's case has gone on very favourably. The ulcers which remain are superficial and have no communication with the joint, and consequently the antiseptic dressing was discontinued some time ago.

removed would not interfere with amputation at the ankle, if the disease should return in the tarsus.

CASE VII.—*Hey's Amputation of Foot.*—Mrs A., æt. 56. Admitted 17th July. Patient had for years suffered from lupoid ulceration of the anterior part of skin of the dorsum of right foot. Within the last six months the disease had extended deeper, and the bones were partly exposed and implicated in the diseased action. For some months the pain had been so excessive as to make the patient anxious that the diseased part of her foot should be amputated. Accordingly I removed it by Hey's amputation on the 24th July. Instead of disarticulating I sawed the bones across at the tarso-metatarsal articulation, as the bones were quite healthy at this part, and this method is said[1] to give a better result than disarticulation where there is no disease of the bone. The stump has been firm and whole for some time, and the patient's health has very much improved since the operation.

CASE VIII.—*Penetrating Wound of Thorax.*—Carl Andersen, æt. 25, seaman. Admitted on the night of 27th July. Patient had on the evening of his admission received a stab with the knife from a companion with whom he had been drinking. On examination at 11 A.M. next day, I found a wound one and a half inches in length near the middle of the posterior border of the right scapula; this wound could be felt to pass down to the intercostal muscles, and the symptoms proved that it penetrated the chest itself. There was emphysematous swelling, extending from about the level of the angle of the scapula down to the last rib and round the side of the chest to within two inches of the nipple. This emphysema was most marked at the posterior part; it had appeared since the patient's admission, gradually increasing in extent. Patient's respirations were 36 per minute, and his pulse 96. Percussion was hyper-resonant on right side of chest. He looked cold and collapsed, and vomited some watery fluid. The expectoration was never bloody. In the evening the respirations were 40 per minute. The wound was left open and a flannel bandage applied round chest. Patient to take 40 minims of sol. mur. morph., to be repeated when necessary.

29*th July.*—Pulse 100; temperature 101°; respirations 36.

31*st July.*—Patient spent a bad night; pain from pleurisy in affected side; dulness over lower part. Poultices ordered.

4*th August.*—The emphysema, having gradually diminished, has now quite disappeared. After this the patient daily improved, and was dismissed on 8th September. There was still some dulness on percussion of the affected side.

[1] *Vide* Joseph Bell's Operative Surgery, p. 62.

ARTICLE X.—*Case of Puerperal Scarlatina.* By DANIEL SUTHERLAND, Physician and Surgeon.

CASES of puerperal scarlatina not being very common, the mortality, when they do occur, being very large, while the treatment is not very well defined, may serve as an apology for me recording the clinical history and treatment adopted in a case recently under my care, ending in recovery.

Mrs T., aged about 36 years, was delivered by me of her first child on Wednesday, 5th July. The presentation was natural, but the labour was tedious. The first stage occupied about eighteen hours, and the second stage I terminated by the forceps. After delivery there was very marked inertia, for after waiting one hour and a half I gave repeated doses of ergot, which, however, did no good; and, considering the case one of retained placenta, I removed it with the hand. There was very little bleeding, and the patient seemed very well indeed. The pulse, three hours after delivery, did not exceed 65 to 70.

About twelve o'clock on Thursday I next saw the patient (twelve hours after the birth), and found the pulse rising, between 80 and 90. I advised great quietness and very simple dietary. I did not see the patient again until next day at 3 o'clock. Matters were now very much changed. I thought I had to do with a case of acute puerperal mania. The pulse ranged from 150 to 180, and often could not be counted at all. The thermometer registered in the axilla 105½°. The breasts were full of milk, the lochia was natural, there was no abdominal pain, but great anxiety and delirium. I ordered

℞ Potass. bromidi ℥ss.
Liq. ammon. acet. ℥xii. M.
Sig., ℥ss. every three hours.

The first dose was given at six o'clock that evening. At seven o'clock I gave her one grain of opium; at eight o'clock I gave with my own hand thirty drops of morphia, and poured ℥ss. sulph. æther over her head, and at the same time rubbed ℥ss. strong mercurial ointment into axillæ. The patient went to sleep, and I remained with her until eleven o'clock (three hours), at which hour I found the pulse had fallen to 135. The mixture was continued—simple food and diluents, but no stimulants yet. Next day (Saturday) I saw patient at 10.30 A.M. The pulse was 130; temperature 104½°, and much delirium; flushed face, turgid look. The whole body was now covered from head to foot with a scarlet rash like a lobster. The throat was not now affected, nor to any extent throughout the course of the illness. I still continued the mixture, gave an opium pill or thirty drops of morphia twice a day. I also poured the æther on the head regularly twice a day. It was very grateful to the patient, and very effectual in

procuring sleep, and subduing head symptoms. This day I rubbed ℥ss strong mercurial ointment into axillæ twice (night and morning). At my evening visit the pulse had still kept up to 130, and the heat to 104°. Next morning (Sunday) the rash was still out. The pulse had fallen to 120, heat to 103½°. The night had been passed quietly, but the discharge had quite dried up, and there was tenderness over the abdomen. A dose of castor-oil was given, which opened the bowels in the evening. The mixture, the opium, and the æther to the head were all continued this day also. The food consisted of beef-tea, chicken-soup, milk, and strong tea with milk, calves'-foot jelly, with ice and jelly-water. Some one or other of these was given to the patient every two hours night and day. At my evening visit the patient was much the same, but almost all day sleeping from effects of æther and opium. On Monday morning the pulse was considerably less in force, but still about 120, but the temperature had fallen to 102½°. Tenderness over abdomen, and milk disappearing from breasts. In addition to continuing the former medicines as before, I again rubbed into axillæ ℥ss. ungt. hydrarg. fort. In the evening the patient was much the same, and I left to nature. Next morning, Tuesday, the fifth of the fever, a complete change took place. The patient was quite prostrate, yet maniacal, and had to be watched in bed. The tongue, which had cleansed and thrown off its strawberry coating, now began to take on a brown, dry, typhus character. Thirst was great. Patient refused food, and death seemed at hand. I believed that this change was due to the complication of uterine inflammation; and knowing of no remedy calculated to arrest this uterine complication except mercurial inunction, I proceeded without hesitation to rub into the abdomen ℥iss. strong mercurial ointment. I also gave the patient ℥iss. sherry, and ordered her to have ℥ss. brandy every three hours till I returned. At this time the pulse had risen to 140, and the temperature to 104°. I again saw the patient eight hours after the great mercurial friction of the morning, and to my great pleasure found that the pulse had fallen to 118, and in six hours later to 108, and the temperature 102½°. Next morning the heat and pulse were quite the same as the previous evening, but the tongue began to clean at the sides, the mouth was moist, the thirst was less, and no pain or tenderness over abdomen. The only stimulant I now allowed was ℥ss. sherry every six hours; but the patient to-day could take strong beef-tea. In the morning, patient was much the same. I gave her a dose of morphia, and poured ℥ss. æther over her head, and she went to sleep for six hours, and got sherry and beef-tea when she awoke. Next morning (Thursday) the pulse fell to 99, and the heat to 101½°, and at midday fell to 93, but rose again to 96 in the evening. The delirium had now almost subsided. The patient only got g. j. opii, and passed the night well, and next morning was very much

improved. Pulse now 84, and heat of body 100°. I now left to nature, and suspended all treatment (medicinal). In the evening, the pulse rose to 88, but the heat fell to 99½°. Next morning (Saturday) the patient seemed much worse. The pulse was up to 99, I believe due to irritation of the uterus, the child being then put to the breasts, which I at once stopped. I ordered her one grain of opium (pill). On my visit in the evening, however, I found, to my horror, that the patient was very much excited —pulse, 120; temperature, 102°; pain in abdomen, and symptoms of hysteria. I anticipated this to be the secondary fever, which is observed to occur in puerperal scarlatina, and I was not, therefore, so apprehensive; but I found that the opium pill had not been given to the patient; that the husband had very much excited her, and specially had instilled into her weak mind that the medicines were the cause of her illness, and that she should take no more medicine! And having so impressed her, and made her promise, he left for the country to enjoy his holidays. Unfortunately, the woman had no relatives, and, being a stranger, had no friend in town who had any persuasive control over her. Towards me she seemed quite changed. In the morning, she would have taken anything out of my hand; now, she dreaded I would give her medicine, while yet she wished me to visit her. I refrained from persuading her, but got the nurse to give her thirty drops of morphia, in jelly-water, without her knowledge at night. She slept well, and on my visit on Sunday morning I found pulse 114, and temperature 103½°. The tongue was clean, and the bowels had acted; a large warm poultice had been put on abdomen. At night, the morphia draught was renewed (without the patient's knowledge). Monday morning at 10.30 I saw the patient. She had slept well, and had drunk well of buttermilk that morning, which she had taken a fancy for, and which I did not prohibit. At 6 A.M., she had ℥ss. brandy, and I allowed her to have this quantity repeated for a few times at intervals of six hours. The pulse was 106 this morning, though the heat was 104°; perspiration was now beginning to break profusely on her. No pain. To-day she is considerably quiet, occasionally showing signs of mild delirium. In the afternoon, the pulse 104, and heat 103½°; the tongue moist and clean at tip; countenance sharp and rather sunken. Had taken food fairly to-day. Got 30 drops morphia at 8 P.M. Saw patient next day at noon. She passed a good night. Pulse, 96; heat, 101°; tongue clean. I now pronounced the patient to be convalescent, being the fourteenth day. She has gone on steadily improving since, and is out as usual now, four weeks after.

Remarks.—1. I believe that the great danger of scarlet fever occurring in childbed consists in the *uterine complications* which are almost certain to follow. The lochia dries up, and inflammation of uterus sets in, less or more diffuse; in short, we have

childbed fever superadded to the scarlatina. Accordingly, the leading object of treatment ought to be to obviate, if possible, the uterine complications. For this purpose, I believe *strong* mercurial friction (so as to bring the system quickly under its influence) to be little short of a specific. This is now the third case in which I have recently had occasion to put this remedy to the test, and in each with the most perfect satisfaction, nor have I observed any after bad result.

2. The treatment hitherto recommended has been stimulants, stimulants only, and stimulants continually. Churchill advises stimulants freely, largely, and *from the very commencement.* This is upon the principle of leaving the whole ravages of the disease to its full course, and endeavouring to fortify nature to endure the fierce attack! Stimulants, in all forms of disease, have their legitimate place, but I did not adopt this wholesale treatment by stimulants, believing that the patient would have a better chance of recovery by endeavouring to prevent, or combat, the uterine complications by the mercurial treatment, and have recourse to stimulants only when specially called for by nature, as indicated by the character of the pulse.

3. In this case, an important question of ethics arose, which ought to demand consideration. The husband, for reasons best known to himself, refused to allow his wife to have any further treatment. Fortunately, the patient was tided over the crisis before this occurred, and, accordingly, it did not affect the case so much, though it might. Had he requested consultation, or the substitution of another physician, I could have understood that he had a perfect right; but the questions here are:—(1) Whether a husband has a right (moral or legal) to prevent, by dissuasion or otherwise, the wife under his care from receiving necessary medical treatment during an illness involving the issue of life? (2) What are the duties and responsibilities of the attending physician under such trying circumstances? The responsibility of the husband, or such person, would seem to be *nil!* The questions, I own, are beset with difficulties, but must be looked at some day. I can recollect a good many cases in general practice where I have been summoned just to see the patient die. In many of these cases, the belief was forced upon me that medical aid was purposely not sought until those in charge felt satisfied that death was certain, and then I was called upon to certify that the deceased died of natural causes. I confess that to such certificates I could have appended that death was either due to, or accelerated by, the want of suitable medical treatment.

Part Second.

REVIEWS.

Clinical Studies of Disease in Children: Diseases of the Lungs, Acute Tuberculosis. By EUSTACE SMITH, M.D. Lond., F.R.C.P., etc. London: J. and A. Churchill: 1876.

THE substance of this work has already appeared in the columns of the *Medical Times and Gazette*, but we receive with pleasure the revised publication. The object of the writer has been to produce a practical work suitable as a guide to students and others engaged in the study of children's diseases, and it seems to us the author has succeeded in his endeavour.

The principle of this differs from Dr Smith's other work on the Wasting Diseases of Infants and Children. In the latter, the subjects treated of are without illustration; in the new volume, the more important symptoms of each disease are illustrated by a selection of well-chosen cases, interspersed throughout the text with commentaries. As its title implies, it is therefore in its nature clinical.

After a comprehensive, but not too long, introductory chapter, in which the peculiarities of children's diseases are considered, the method of clinical examination of infants and children explained, and the diagnosis, prognosis, and treatment reviewed, Dr Smith at once proceeds, in the six following chapters, to treat of collapse of the lung, croupous pneumonia, pleurisy, acute catarrhal pneumonia, chronic catarrhal pneumonia and unabsorbed pneumonic deposits—pneumonic phthisis, and fibroid induration of the lung. Each of these diseases has a chapter to itself, and is illustrated with several cases.

The work would have had a more compact and systematic character had these chapters been arranged otherwise. Thus, collapse of the lung, we are told, is one of the most important diseases of early life; and after the next chapter—devoted to croupous pneumonia, which is stated to be a comparatively unfrequent disease under the age of two years—we naturally expect that catarrhal pneumonia, peculiarly the pneumonia of infancy, would be next in rotation. Contrary to expectation, a long chapter on pleurisy and empyema divides the diseases of the lungs. Possibly this arrangement may have been necessitated by the order in which the papers appeared in the medical journal; but, in the revision for separate publication, a re-arrangement would have been advisable. The ample and well-arranged tables of contents and index do, however, in considerable measure, remove any difficulty the reader may have in consulting the volume.

Tuberculosis forms the subject of the three remaining chapters of the book. One is devoted to acute general tuberculosis, another to acute affection of the pia mater, and the last to that of the peritoneum.

The description of the various diseases is clear and full, without verbosity. The cases, numbering forty-one in all, give an interest to the work, and a reality to the descriptions. The treatment recommended is judicious, is based on extensive experience, and appears to be reliable.

To the student of the diseases of children we can confidently recommend this re-publication as trustworthy in the department of which it treats.

A Treatise on the Diseases of Infancy and Childhood. By J. Lewis Smith, M.D., Physician to the New York Infants' Hospital. London: H. K. Lewis: 1876.

The present is the third edition of Dr J. Lewis Smith's (of New York) Treatise, and, as it has been published in little more than three years after the second, it is to be concluded that the work has been well received in America. Each edition has had additions to it, and it might reasonably be expected that the third would have been approaching perfectness. The only diseases stated to be considered for the first time are rötheln and cerebro-spinal fever, epidemics of which had occurred in New York since the appearance of the last edition in 1872. The article on diphtheria, as well as several other chapters, have been re-written. In some places a fuller description might have been desirable; as, for instance, in the reference to the use of the ophthalmoscope in diseases of the brain, no account is given of the appearances observed in tumour. The volume is well got up, printed in clear type, and numbers upwards of 700 pages.

The introductory chapters are very good; that on lactation is very comprehensive, and a subject, concerning which the columns of one of the medical journals have lately presented the opinions of various writers, is shown to be no new one. Referring to the effects of mental impressions of the mother on her milk, Dr Smith observes, "The infant has died suddenly, in the act of nursing, after the mother had been violently excited;" and he refers to the case related, now a good many years ago, by Tourtnal. Amongst the galactagogues we fail to find mention of jaborandi. Fish diet, so highly recommended by some authorities, is not mentioned, and no reference is made to the use of conger-eel soup, so well spoken of by Routh, although that writer is quoted on other matters connected with infant feeding. The chapters on artificial feeding are good, and the view advocated by Dr Smith we regard as sound.

In the chapter devoted to the accidents and ailments incidental to the birth of the infant, we find favourable mention of the mode of resuscitation recommended by Professor H. L. Byrd, of Baltimore, which consists of bending the two extremities of the trunk so that they form with each other an angle of about 45° in the diaphragmatic region, and then reversing the angle by carrying backward the shoulders and nates. By alternating these movements it is stated that resuscitation, in cases of apnœa neonatorum, has been effected when other methods had failed, and when so much time had elapsed that the case would seem hopeless to most practitioners.

The articles on ophthalmia and diseases of the umbilicus are well written, but, as a consequence of inflammation of the umbilical vessels, no reference is made to hepatitis or secondary abscesses. Whilst hæmorrhage from the umbilicus and intestine in the recently born are fully described, it is notable that hæmorrhage from the genital passages of the female child is not mentioned.

The chapter on the diagnosis of infantile diseases, whilst condensed in words, is full in detail.

The rest of the volume consists of the second and third parts of the work.

In the second part constitutional diseases are considered under four sections. Diathetic diseases, in which rachitis, scrofula, tuberculosis, and syphilis are included, form the first section; the second embraces the "eruptive fevers." In the third section are included the "non-eruptive contagious diseases," under which title, diphtheria, pertussis, and parotiditis are classed. The fourth section is formed of "other general diseases," including intermittent fever, remittent fever (which Dr Smith considers to be of malarial origin), typhoid fever, cerebro-spinal fever, acute rheumatism, and erysipelas. These arrangements are open to criticism, and might be improved. Referring to the views which have of late been expressed regarding the identity of laryngeal diphtheria and membranous croup, our author observes, "There can, however, be no doubt that there is a membranous croup which is quite distinct from diphtheria. I saw many such cases in New York, prior to 1858, when there had been no diphtheria in the city for many years. In no one of these cases was there the history or any evidence of contagiousness; but, on the other hand, as they occurred singly, the proof was strong of their non-contagiousness. Nevertheless, at the present time, when the diphtheritic poison is so abundant in the atmosphere, we certainly have few cases of membranous croup which are not diphtheritic or do not become such. It is not improbable that the exudate of true croup affords a virus in which the diphtheritic virus lodges and multiplies, so as to transform a simple croupous into a diphtheritic inflammation, just as we have seen scarlatinous pharyngitis become diphtheritic. In no other way can I explain the comparative infrequency of croup as we observed it in former times."

The third part is divided into five sections—diseases of the cerebro-spinal system, diseases of the respiratory system, diseases of the digestive apparatus, diseases of the circulatory system, and, lastly, skin diseases. These different sections contain excellent descriptions of the various diseases. We would especially notice the chapters on tetanus infantum, chorea, and paralysis.

The diseases of the respiratory system, with their pathological conditions, are generally carefully written, but neither under this section nor in the account of eczema do we find the form of asthma, peculiar to children and associated with that skin disease, described, or even alluded to.

The chapters on diseases of the digestive system, especially those on non-inflammatory diarrhœa, intestinal inflammation, and cholera infantum, contain much valuable information. We note, Dr Smith is of opinion, founding his view on his experience in New York, that the pathological lesion in cases of epidemic diarrhœa occurring from May to October, and attaining its maximum prevalence and mortality in August, is inflammation of the intestine, entero-colitis, and that the disease is one of the city. It results from the infant inspiring an atmosphere contaminated with decaying animal and vegetable matter, aided by an improper diet. His statistics, founded on 282 cases, also show that although a large majority of these occurred during dental evolution, yet in a certain proportion, about 1 in 4, teething could not operate as a cause. His opinion is that dentition is an occasional cause of simple diarrhœa, though a subordinate one, but evidence is wanting that it is sufficient of itself to produce inflammation. "An important predisposing cause of intestinal inflammation in infants is the rapid development of the intestinal crypts and follicles." Another cause of entero-colitis is weaning. Dr Smith observes, this is a subject to which less attention is given than its importance demands. "In this city nearly every infant taken from the breast between the months of April and October very soon becomes affected with diarrhœa, which, if not inflammatory in its commencement, soon becomes such. Weaning in the cool months involves less danger, but even then the succeeding summer is one of peril." This statement suggests that the system of feeding adopted in New York after weaning, must have something to do with the cause of such a result. Probably the irritation of the intestines, excited by too early and injudicious administration of a farinaceous diet, to the exclusion of good milk, has greatly to do with this unsatisfactory state of infant health.

We must take exception to Dr Smith's description of the causes of urticaria in the child; amongst these are given profound and sudden mental emotion and uterine ailments! Such causes may affect the adult, but can scarcely be regarded as applicable to the disease as it occurs in infancy and childhood; and if he had recommended that the diet for several days should consist of milk and

farinaceous food, we consider it would be more judicious than to allow "fresh beef."

We regard Dr Smith's book as a very useful and readable addition to the already numerous volumes on the diseases of infancy and childhood. It contains a considerable amount of original information incorporated with the most reliable opinions of other authorities, and will be found a useful work, not only to the student but to the practitioner. Although we have noted some of the weak parts, which we hope to see strengthened in the next edition, we cannot but recommend the treatise as one of much merit, and worthy of professional confidence.

Public Health. By the late E. A. Parkes, M.D., F.R.S., Professor of Military Hygiene in the Army Medical School, Netley, etc., etc. London: J. and A. Churchill: 1876. Pp. 80.

This little but important and valuable work engaged the mind of its accomplished author at intervals during his last fatal illness, and was found completed after his death. No one could speak with more authority on the subject than himself; and as it contains a general outline of the questions embraced by the legislative Acts regarding Public Health, and shows clearly, concisely, and accurately the points which at present engage special attention, and demand legislation, it cannot fail to interest a large circle of readers both in the profession and outside of it. Political economists, Members of Parliament, municipal corporations, employers of labour, and emphatically architects, engineers, and builders, will profit by a careful perusal of its few, yet luminous pages. Our limits forbid quotation at any length; but we are tempted to give the following:—

"In all cities there are districts inhabited by wealthy people where the mortality is as low as in the most healthy country places. It ought to be possible, therefore, to raise the health of the inhabitants generally to the standard of these favoured districts, for poverty can be placed in as good hygienic conditions as wealth, though it may demand rather more thought and contrivance to accomplish this." Speaking of the impurity of the air in houses from drains, he makes these remarks: "In order to detect any of these conditions, it is necessary that builders should alter all their plumbing arrangements. At present they try to conceal everything, so that, without pulling a house to pieces, it is impossible to examine if pipes and traps are in order. Instead of this, every pipe should be kept out of walls and above ground, and if cased with wood, the case should be merely bolted, and not nailed. If a pipe must be carried under ground, it should be laid in a regular channel, which can be opened, but as far as possible all pipes should be

above ground and open to sight, and never should run under houses. The sewage and foul water arrangement of our houses will never be satisfactory till these matters are attended to, and till the examination of every pipe about the house can be made without difficulty, and the clogging of pipes, or air and water leakage from them, detected. In closets, the points of air leakage are the horizontal pipes and the traps. In all cases, the soil-pipe should be ventilated by a pipe carried to the open air at some point far from windows."

We are tempted to quote, in conclusion, the last dying testimony, so to speak, of this thoroughly informed witness in regard to the *questio vexata* which at present excites so many ignorant non-professional but well-meaning people. "The prevention of syphilis and gonorrhœa, by periodical inspection of prostitutes, and removal of them to lock hospitals when diseased, is only carried out in this country in certain military and naval stations, where the effect has been to lessen primary syphilis by *nearly one half* and to abate its virulence. The effect of the Contagious Diseases Acts upon the women, in respect not only of curing them, *but of influencing them for good and for reclaiming them*, has been very remarkable. In Germany, France, and Belgium precautions against venereal diseases have been carried out among the entire population for many years, with the effect of greatly lessening the amount and virulence of syphilis. As primary syphilis has a most pernicious effect upon the health of a very large number of persons, it is most urgently to be hoped that the Legislature may before long deal thoroughly with this matter, and attempt to lessen syphilis, not merely in the army and navy, but among the population at large."

The Journal of Psychological Medicine and Mental Pathology. Edited by LYTTLETON S. FORBES WINSLOW, M.B., D.C.L. New Series. Vol. II., Part I. London: 1876.

THERE is a great improvement in this number of the Journal. Some of the articles are of real scientific value, and others are readable and instructive. Dr Winn returns to his attack upon Dr Tyndall's materialism; and the papers on Second Sight and Quis Custodiet Custodes? explaining the danger of giving an imprudent range of liberty to lunatics, are very good reading. They are both written by Dr W. A. F. Browne. Considering the difficulty of getting anything new in the psychology of insanity, it is a commendable expedient to give translations of good papers in foreign languages. There are two such translations from original articles of Professor Benedict. In one of these he gives a description of the brain of three criminals, and tries to show that their crimes are the natural consequences of defective cranial structure. The

other article on the natural history of crime pursues the same subject.

Dr Rorie's Remarks on the Lunacy Act (Scotland) show in a clear manner the necessity for a revisal of these laws. The following passage will commend itself to those who have watched the operation of the Lunacy Acts:—"It will be found that in many respects they are far from being in harmony with the practical object now kept in view, in sending the insane to these institutions, while to those who have carefully studied the history of this subject for the last twenty years, many of the enactments, especially those of more recent date, will no doubt appear distinctly retrogressive. We have seen, for example, that the principle aimed at by the statute is chiefly the detention of the lunatic as a dangerous subject, rather than his treatment and cure as a patient; that by making a person's sanity or insanity depend on medical certificates, too great facilities are afforded of sending to asylums helpless paralytics, or others who have become troublesome to their friends, if but the slightest mental infirmity can be detected in their cases; while in the attempted division of the insane into the harmless, dangerous, incurable, and those amenable to curative treatment, we have a legal enactment of a very unsatisfatory, impracticable, and unscientific character."

It occasionally happens that medical men, in giving certificates of insanity, show an ignorance of the legal forms and definitions which renders the whole system of granting such certificates of doubtful advantage, especially in the eyes of members of the legal profession.

The following quotation, taken from Mr Phillip's Law of Lunatics and Persons of Unsound Mind, is worthy of careful consideration:—"It will appear, from the authorities cited below, that the proper sense to be attached to each of the above phrases has been fully considered and positively determined. We may therefore lay it down, that every person whose mind from his birth, by a perpetual infirmity, is so deficient as to be incapable of directing him in any matter which requires thought or judgment, is, in legal phraseology, *an idiot.*

"Every person *qui gaudet lucidis intervallis*, and who sometimes is of good and sound memory, and sometimes *non compos mentis*, is, in legal phraseology, a *lunatic.* Every person who, by reason of a morbid condition of intellect, is incapable of managing himself and his affairs as an idiot or a lunatic, not being an idiot or a lunatic, or a person of merely weak mind, is, in legal phraseology, *a person of unsound mind.*"

The reviews are well written, and there is a psychological retrospect, somewhat exclusively devoted to news of the horrible tragedy character.

A Text-book of Veterinary Obstetrics. With numerous Illustrations. By GEORGE FLEMING, Veterinary Surgeon, Royal Engineers, etc. Part I. London: Baillière, Tindall, and Cox.

THIS is the first part of a work, which, when completed, is intended to constitute a complete manual and *vade mecum* for the veterinary surgeon in his obstetric practice. This section of veterinary practice has already received a due amount of attention and study at the hands of writers on veterinary subjects, but there still appears to be room for the production of a specialized work on the treatment of normal and abnormal parturition in our domestic animals. Mr Fleming brings to his task a large experience, both as a practical veterinarian and as a writer on veterinary topics. It is a somewhat invidious task, both as regards author and reviewer, to pronounce a definite opinion regarding a work from an inspection of merely a fragmentary part. But, as far as we may reasonably judge from the careful perusal of this first number of the text-book, the work gives fair promise of fulfilling the aims the author claims for it. We question, however, whether the author's adoption of such terms as *cutokia* for natural parturition, and *dystokia* for abnormal or complicated parturition, is a wise procedure. In our opinion, the plainer the terms and style in which a work like the present is written, the more effectually will it appeal to the sympathies and tastes of the veterinary profession. There is little need for mincing matters over the use of old and new terms in the present case. The part before us deals with the anatomy and physiology of the generative organs in the horse as the type; the organs of other species of animals coming within the cognizance of the veterinary art, being afterwards compared with those of the Equidæ. Mr Fleming follows the order and arrangement we are accustomed to see in our obstetric text-books, since he begins by describing the anatomy of the pelvis, and then passes to the consideration of the soft parts. And in the author's style, especially when treating of physiological topics, there is to be noted a likeness to that of many of the text-books of human physiology—the result probably of close study of the already investigated province of human reproduction. We should imagine that the clear understanding of the analogies to be drawn between human and comparative reproduction, together with the additional and specific knowledge of the veterinarian, constitutes the basis for the successful production of a work like the present. Mr Fleming has apparently taken pains to become acquainted with the comparative history—if we may so term it—of his subject, and hence is able to enlarge and extend his remarks in a profitable manner. In his treatment of "Menstruation," for example, Mr Fleming shows his acquaintance with the literature of the subject, and succeeds in giving much solid information regarding the important relations of

the menstrual phenomena to ovulation. The present part introduces Chapter IV., and ends abruptly amidst the consideration of the changes which ensue to the ovum after impregnation. The illustrations in this part number thirty-eight, but they appear to be somewhat indistinctly printed—a fact depending, we should say, either on the worn nature of the blocks, or in carelessness in cutting or in printing. For the most part the illustrations are derived from sources with which students of human anatomy and physiology are familiar. This is particularly the case with the cuts illustrating the development of ova, and which were originally drawn, if we mistake not, by Martin Barry and Allen Thomson. With a little additional clearness in the printing of the illustrations, and with the maintenance of the excellence exhibited in this first number, the work as a whole, we think, will form a valuable addition to the literature of veterinary science.

The First Annual Report of the Committee for Clapton and Darenth Asylums for Imbecile Children, to 31st December 1875.

The Asylum for Idiots, Earlswood, Red Hill, Surrey, Report 1876.

LONDON is considerably in advance of any other part of Great Britain in the necessary arrangements for the better care of idiots. The great asylums of Caterham and Leavesdon were built some years ago for idiots and harmless lunatics, and this was a great improvement upon the old system, when idiots, maniacs, dements, melancholiacs, and general paralytics were mixed and massed together by hundreds in one enormous building under the care of a medical officer, with one or two assistants, as the case might be. The parochial boards of London soon found that for the welfare of their patients it was necessary to have further division, and they determined to separate the children from the adults, in order "that an attempt might be made to impart to them an amount of training and education which might in many instances fit them ultimately to go out into the world and earn their own livelihood, and which in any case could scarcely fail to ameliorate their unfortunate condition, and at least induce in them habits of cleanliness and order."

The children were first sent to Hampstead, and in 1874 they were transferred to the London Orphan Asylum at Clapton, which has been rented for their use for three years. The Committee purchased an excellent site at Darenth, about two miles from Dartford, in Kent, containing about 105 acres, where they are about to erect a well-planned asylum on the block system for 500 pauper idiots and imbeciles. In the meantime 300 of these children, entirely taken from the London pauper population, are being cared

for at Clapton. In considering the Report of the medical superintendent, Dr Fletcher Beach, it is necessary to bear in mind that all cases sent, however unpromising, are received at the Clapton asylum, and no selection is made, as at the idiot asylums of Earlswood and Lancaster; and that the building, though in many respects a comfortable one, with considerable grounds round about it, wants a number of conveniences which would be very useful for the better care of the helpless and invalid cases which Dr Beach has to treat. There is especially a great want of separate hospital accommodation. Many of the inmates are wretched little creatures, who have never learnt to walk, never spoken a word, and require to be carefully fed; in a word, they have never passed out of the infantile condition, and never will. The death-rate is 6·6 per cent. if calculated on the total number under treatment, and 9·1 per cent. if calculated on the average number daily resident. As there is no other idiot asylum in the same condition no comparison can be made; but this mortality does not appear high.

The number resident in the asylum on the 31st of December 1875 was 300; the number attending school was 240. The Report of the schoolmistress is interesting. She remarks—"The singing in this, as in the other classes, is taught by ear, the children first learning the words, repeating being a means of improving their speech. All are very fond of singing. Many cannot sing, but listen to others with pleasure. Others sing without words."

This favours Meynert's view, that the centre for musical sounds is distinct from the centre for word sounds.

Dr Fletcher Beach remarks—"The Committee will be pleased to learn that as a general result of the training and treatment carried on in the asylum, many children, who, on admission, could not speak, have learned to do so. Many helpless have learned to walk; the habits of the wet and dirty cases have been much improved; while the number of fits occurring in the epileptics has been considerably reduced."

The Commissioners in Lunacy, in the report of their visit, observe:—"The ages of the children under care and treatment range from 5½ to 16 years. At that maximum age, since all paupers (according to the view taken by the Local Government Board) then become adults, the boys and girls are then transferred hence, and their special educational training comes to an end. If this be so, we think it is to be regretted, especially in those cases where the past gave hopes of such future improvement under training as would fit children, albeit of slow apprehension, ultimately to earn their livelihood in the outside world. We trust that it may be found practicable to modify this practice of adhering strictly to the age of sixteen."

We have been informed that there is a prospect of the training of the imbeciles being still prosecuted at Caterham and Leavesdon.

It is very unlikely that the Local Government Board should hold that it ought to be dropped, but none really conversant with the subject will disagree with the recommendation of the Commissioners in Lunacy.

In Dr Fletcher Beach's establishment trades are taught, such as tailoring, shoemaking, and carpentry; and when Darenth Asylum is built, he is to have a hundred acres of ground to cultivate and keep in order. To attempt all this with pauper imbeciles under sixteen would be merely playing with what should be a serious business. To diminish the expense of caring for so many helpless children through paid servants, Dr Beach has got the aid of twenty-one women from Caterham and Leavesdon. These cases are not under lunacy certificate. The Commissioners in Lunacy inspect the Clapton Asylum, but the admissions are not reported to them.

We observe, from the Report of the Dundee Royal Asylum, that three of Dr Rorie's admissions were imbeciles transferred from Baldovan Asylum, in consequence of having exceeded the age at which they could be detained in that institution. "It is to be regretted," he remarks, "that any necessity should have existed for their removal, for experience has shown that, however carefully such cases may be attended to in a lunatic asylum, they never benefit to the same extent as they do in establishments specially set apart for their education and training."

It is unfortunate that there is no asylum for adult imbeciles, and it is deplorable that they should be treated as lunatics and thrust into asylums for the insane. Those acquainted by practical experience with the nature of these establishments will not be at a loss to decide that these imbeciles had better have remained at Baldovan till a more suitable place was found for them. As it is now admitted that idiots should be treated in a different way from lunatics, this difference should be fairly recognised both in law and practice.

Dr Fletcher Beach has great opportunities of studying the pathology of idiocy, and his valuable papers on sporadic cretinism give proofs that he is able to make good use of them.

The Report of the Earlswood Asylum for Idiots is printed by the inmates. On 31st March 1876 the number under care was 590. Dr Grabham, the superintendent, gives instances of two female inmates now making their bread out of doors, one of them as a nurse, the other as a teacher in an elementary school.

The medical report is short, but Dr Grabham promises to give some of the results of his great experience in a more scientific form.

A Contribution to the Treatment of Uterine Versions and Flexions. By EPHRAIM CUTTER, A.M., M.D. Second Edition. Boston: 1876.

SECOND edition! Weeds do thrive, even under the patronage of Dr Gaillard Thomas. Questionable preface, bad anatomy, bad woodcuts, bad pathology, bad treatment. We recommend our readers not to buy this book.

On Port-Wine Mark and its Obliteration without Scar. By BALMANNO SQUIRE, M.B. Lond. London: J. and A. Churchill.

THE author thus describes an ingenious method he has devised for taking away these unsightly blotches:—

"Freeze the part to be operated on, and thus render it perfectly insensible (by means of the æther-spray apparatus), then scratch it with an ordinary cataract needle with parallel scratches, then place a piece of blotting paper on it before it has thawed, and consequently before it has begun to bleed, and press the blotting paper firmly on the scratched skin for five minutes."

For more minute directions we would strongly recommend those interested to read the paper.

Part Third.

PERISCOPE.

SYPHILIS AS AFFECTING THE BURSÆ.—Twelve interesting cases of tertiary syphilitic bursitis are tabulated and described by Dr E. S. Keyes, in the *American Journal of the Medical Sciences*, April 1876.

Secondary syphilis attacks the bursæ as a congestion. In the tertiary stage there are two forms of gummy bursitis; one form extending from the neighbouring tissue to the bursa, the other originating in the bursa itself.

That tertiary syphilis when primarily affecting the bursæ is, in all cases, insidious in its course, indolent at first, and never becoming painful till the integument is affected.

In one-half of the cases a traumatic exciting cause may be accused of calling out a local expression of disease. In the six cases where it is mentioned, the average date of appearance of the

affection after chancre was a little over five years (shortest 1½, longest 8½ years).

Both sexes seem to suffer equally, but in all the females the bursæ about the knee were alone involved. Mixed treatment always afforded relief; mercury externally, iodide of potass internally.

A Model Case. Successful Removal of an Extra-Uterine Fœtus. By E. T. Easley, M.D.—Frances Twitchell, aged thirty-four years; married, mother of three living children; duration of pregnancy, twenty-four months; position of child, directly across the front of the abdomen, head in right iliac fossa, back to pubic symphysis. Incision in the line of the linea alba, extending from an inch above the umbilicus to within an inch of the pubes. The cyst—dense, fibrous, and tough—was not adherent in front, but had contracted extensive adhesions below. The child, of good size and well preserved, was adherent intimately at *all* points to the cyst. Liquor amnii absorbed; placenta nearly atrophied; the cord a mere string. The child was broken up and extracted piece by piece, a tedious dissection; and the cyst cavity sponged out and cleansed with a chlorinated wash. The edges of the cyst were stitched to the abdominal wound by a fine uninterrupted suture, and the whole closed by deep interrupted sutures made to include the cyst walls. Free drainage was kept up from the lower end of the wound, and the cyst cavity constantly cleansed with antiseptic solutions, until it has gradually become obliterated by suppuration and granulation. I succeeded in excluding all exudation, hæmorrhage or fluids, from the peritoneal cavity.

The patient is now in better health than since this pregnancy occurred. The operation was undertaken on account of the exhaustion and irritation of rapidly recurring attacks of pelvic and abdominal pain, and at the urgent desire of the patient and her friends. Doctors Watkins, Southall, Cross, Dibrell, and Smith were present, and ably and judiciously assisted.—*American Practitioner*, September 1876.

Puerperal Fever: Some practical clinical Facts. By Julius A. Post, M.D., Rochester, New York.—Much has been said and written in regard to the specific cause of puerperal fever. Each practitioner of medicine should carefully study the subject from his standpoint. What would seem to be the exciting cause at one time would appear to be perfectly inert at other times. It has been my privilege to observe the origin and progress of three epidemics of puerperal fever; each seemed to have the same exciting cause, and appeared to be communicated by the medical attendant from one lying-in patient to another. Those who have passed through this trying ordeal may possibly appreciate and be benefited by the experience of one similarly situated. At seven

o'clock on the morning of 15th May, I was called to attend Mrs G., in her first confinement. She had been in labour six hours; I found the feet, legs, body, and arms of a very large child protruding from the vulva, but the head was firmly held with the chin thrown up and behind the pubis. The child was quite cold and dead, and had been in the position in which I found it for about an hour. I immediately gave thirty drops of fluid extract of ergot, applied the forceps, and in a few moments delivered her of a child which weighed eleven pounds. The placenta came away at once, and without assistance, and she seemed to be in a very excellent condition. My experience had been that such cases seldom required much after-treatment, and I so informed the friends, but instructed them to call me should they need assistance. As I was going out of the house, Mrs P., one of the ladies who had been present during the entire illness of Mrs G., called my attention to a small red spot which had appeared the day before on her (Mrs P.'s) face. I examined it quite closely, but saw nothing which seemed to indicate that it was of a serious nature, and I thought nothing further of it until the afternoon of the next day, when a message was left at my office that Mrs P. was very sick, and wished to see me immediately. I found her with facial erysipelas, which, she said, began at the spot which I saw in the morning I attended Mrs G. She informed me she attended Mrs G. personally during the night, and before my arrival she had made several attempts to bring away the child by forcible traction and other manipulations; also, that she had remained with Mrs G. until her (Mrs P.'s) face was so swollen and painful that she could not keep on her feet, and she was obliged to give up and go to bed. The next day I was called to see Mrs G., and found her with symptoms which led me at once to suspect puerperal inflammation, and which unmistakably developed itself in the next few hours. She passed through a long and painful illness, but fortunately recovered. I had previously thought of this matter, and made up my mind that, should I ever have a case of puerperal fever, I would give up my obstetric practice at once, and, although I had a number of lying-in patients at the time, I did not again visit them or any other patient approaching confinement during the whole of Mrs G.'s sickness. No other cases occurred at that time, and none in that vicinity since—at least, if they did occur, they did not come to my knowledge.

My friend Dr S. had charge of a case of erysipelas of the great toe, and, without any particular care as to himself, he went about his daily practice as usual. It so happened that he had a number of lying-in patients at the time; three of them had puerperal fever, and all died within two weeks.

An old acquaintance and much-esteemed friend (Dr W.) had an equally sad experience. His obstetric practice was very large. During a particularly busy season he was called to attend a case of

facial erysipelas, and continued to attend his lying-in patients as usual. Immediately following the erysipelas came eight cases of puerperal fever, and six of them proved fatal. I do not wish to discuss the identity of erysipelas and puerperal fever, but facts are facts. It may be possible that these cases would have occurred, and that their occurrence at that particular time was an accidental circumstance. They are the only cases of puerperal fever which have come within my observation, and the cause seemed painfully evident to those interested, and the termination so sad that I feel justified in placing them before the medical public; and I trust that the experience of these very excellent and able practitioners may prove a warning to those who may chance to be thus unfortunately situated.—*New York Medical Journal*, September 1876.

THE following brief account of Professor Lister's Address in Surgery is from our admirable contemporary, the *Boston Medical and Surgical Journal*:—The great event of the day was the discourse by Professor Lister in the discussion that followed his paper. He spoke for three hours, during which he received the most unwavering attention. He first referred to the great trouble which attends a perfect use of the antiseptic method. He acknowledged the wearying care attendant upon its use, but expressed his honest belief that there did not exist a medical man who would not be faithful in carrying out any form of treatment which promised to help a patient. He described an operation by which he recently cut out large wedge-shaped pieces from the two femurs of a cripple in order to straighten his limbs. To do this without strict antiseptic treatment would make success impossible.

Referring to wounds on the head, he said that to remove dressings after days in which they were left untouched, and to find no pus, but fresh cicatrices, was a new era in surgery. This cannot be done without antiseptic treatment. To open the spine, remove carious bone, and restore the patient to health, cannot be done without strict antiseptic treament. To open an acute abscess, press out the last drop of pus, and see no more form, can only be accomplished by the antiseptic method. Unless we use this method we cannot safely tie large arteries without deep-seated suppuration. "Indeed," said he, "I should be exceedingly sorry to apply any ligature without strict antiseptic treatment. We need have no hesitation in expressing the belief that, although we may have good healing without antiseptic treatment, we cannot thus secure the best results. Antiseptic surgery is dealing with surgical cases in such manner as to prevent putrefaction. When I read Pasteur's original paper I said to myself, 'Just as we may destroy lice in the head of a child who has pediculi, by poisonous applications which will not injure the scalp, so, I believe, we can use poisons on wounds to destroy bacteria without injuring the soft tissues of the patient.' Putrefaction may be caused by an individual himself, because of

his feeble condition. In simple fractures, even, we have a serious wound. If we could only see it we should say, 'Here is dead tissue. It must be poulticed to help its removal.' I say, in simple fractures are injuries of all degrees.

"If injury follows the opening of an abscess, it is not due to the admission of matter from without, but to the effect upon the pyogenic membrane, which gives it power to absorb, as it did not when intact. So says Billroth. But we did not need to have Billroth tell as that granulations do not absorb, and that putrescent absorption occurs before granulation. I said this in works of mine years ago. We all know how when water-dressings are removed from granulating surfaces, the whole ward will stink, and yet the granulations do not absorb. We knew this long before Billroth wrote. The cause of the mischief in the free opening of abscesses without the antiseptic treatment is that the pyogenic membrane is not in a condition of granulation. But in acute abscesses we have a granulating surface, just as we have in recent wounds. It is not so in chronic abscesses. Many abscesses do not form pus at all until they are opened. They are not then in a condition of granulation, but in consequence of their chronicity they can absorb. Granulations covered by epithelium develop in proportion to the amount of epithelium. In pyogenic membranes the surface will absorb in proportion as it resembles a sore with the granulations stripped off. I have seen a patient die within twenty-four hours, and before the membrane had had time to granulate, by absorption of putrescent matter, and although the fluid discharge was clear and not yet pus, it stunk."

Professor Lister then showed his common and most reliable dressing. He uses carbolic acid, but insists that it be perfectly pure. That which makes carbolic acid unpleasant to the smell is cresyllic acid. "If a solution of acid and water be not clear, the cloud is caused by insoluble carbolic acid, and this portion will irritate the hands if rubbed upon them. But a perfectly pure solution will not do this. Carbolic acid has the property of penetrating through many, even oily, substances, and will cleanse more perfectly than anything else I know." Lister likes salicylic acid, but prefers carbolic, because more volatile, and hence more searching. He then showed his ingenious spray-producer, which is so arranged that the spray can be directed at any angle upon a wound without the need of an assistant. He begins his dressing by first requesting his patient to cleanse the injured part by washing. He used to excise the carpus. Now he does not like the operation. In case of injury in which there is great mobility of the wrist, he makes two or more free incisions into the joint, keeps the wound open, and uses a drainage-tube, with good results. The finger-nails should always be cleaned before the hand or finger is introduced into the body. Nothing of this sort should be neglected. Be sure not to introduce anything into the wound not

cleansed by the carbolic-acid lotion of one part of acid to twenty of water.

Lister uses a coarse netting dressed with a mixture of carbolic acid one part to resin five parts. He first lays upon the wound a piece of oil-silk well varnished with copal varnish and wet in the carbolic-acid lotion. He does not use this in opening abscesses, because he does not wish them to heal. If the gauze went first upon the wound it would irritate and cause a flow of pus, but if the oil-silk be first laid on we may leave the dressing for a week. The trouble is great, but it pays. If during an operation an instrument be laid on the table, it should not be again used until it has been dipped into the carbolic-acid lotion. Those who use the method do this instinctively. The gauze is next laid on, first being dipped into the carbolic-acid lotion. The remainder of the dressing, already prepared of layers of calico, oil-silk, and wadding, must not be laid on without first protecting it by gauze dipped into the lotion, because, having been lying upon the table, it may be covered with germs. All this is done under a cloud of spray, and when the dressing is changed it must be done under the spray, and one must see that this plays between the dressing and the skin of the patient. The whole is bound on by a roller of silk gauze moistened in the solution.

Lister then at great length explained his own experiments and those of others with milk, water, urine, and other fluids, variously protected from bacteria by covers, or by boiling, and he showed how germs may find entrance into fluids, and how these fluids may be protected from them. In regard to bacteria found in freshly voided urine, he said he believed that a healthy mucous membrane in the urethra prevents the development of bacteria. In lesions of the membrane, if it be washed by a solution of water and carbolic acid, and the penis be washed in the solution and a cap soaked in the solution be put on, the urine will not change in any respect. He then described his catgut ligature, and his method of preparing it. He at first tried chromic acid, but that substance made the ligature too hard. He then tried glycerine, chromic acid, and water; next, chromic acid and carbolic acid; now he uses chromic acid, glycerine, water, and spirits of wine.

Professor Gross then said that for years he has prevented irritative fever in patients who had chronic abscesses, without the antiseptic method, by putting them at once under the influence of anodynes and keeping them thus for several days.

In reply to a question as to the use of the antiseptic treatment on abdominal lesions, Lister mentioned a case in which the bowel protruded and lay outside the cavity for half an hour, covered with a cloth dipped in the carbolic-acid solution. The bowel was returned, and there was not the slightest disturbance of the peritoneum. All operations are done under spray. He himself never did ovariotomy, because there was an ovariotomist in his hospital, but all of his six colleagues, with one exception, employed the

antiseptic treatment as carefully as he himself, and their success is in proportion to the amount of care they use. Lister said many other things of interest, but lack of space will not admit them here. He spoke three hours, and kept the attention of his audience to the end. He explained away the report that bacteria had been seen under his dressings, by saying that the report was started by Ranke, Volkmann's assistant in Halle, who thought he had discovered bacteria; but, when Ranke came to Edinburgh, Lister showed him that these supposed bacteria were only a microscopical illusion, a false impression caused by a movement of the fluid in the field of the microscope, which movement was communicated to particles of inanimate matter which resembled bacteria. Ranke confessed his error.—*Boston Medical and Surgical Journal*, 14th Sept.

Exposure of a Spiritualist by Physicians.—For about a year and a half past a Mrs Hull, who lives in Portland, has had great celebrity as a "materializing medium," that is, a person in whose presence the disembodied spirits of deceased mortals can, under certain conditions, assume the shape and appearance of their perished bodies. The possession of so extraordinary a power naturally made her an object of interest, and she was greatly besought to display her talent to the outside world. The method of proceeding was very like that generally employed on similar occasions, but had less appearance of dishonesty. A triangular space was curtained off in one corner of a large parlour, of which the floor and walls were evidently free from deluding apparatus. The medium sat on a low stool in one angle of this space, and, to quiet scepticism, she allowed a portion of her skirt to project beneath the curtain, in which position it invariably remained unmoved throughout the performance. The light was turned almost out, the spectators arranged themselves in a line before the curtain, and the medium went into a trance. As usual, an Indian spirit superintended the show, and communicated with the audience sometimes by raps, at others through the vocal organs of the unconscious Mrs Hull. In about twenty minutes ghostly figures would appear at the central slit in the curtain. These were usually female forms, clothed in long, flowing, white robes, and generally veiled. Very rarely a male would appear, and once in a while a little child. Figures often came out several feet into the room, touched some of the spectators, allowed themselves to be fondled and kissed, brought flowers, and did other things indicative of intelligence and affection. Sometimes the spirit would hold the curtain a little aside and display the medium upon her cricket.

Four medical men attended on several occasions, and made up their minds as to the frauds; and soon wearying of the show, which was not so clever as it at first seemed, they laid their plans for the exposure of the trickery; and on the evening of the 22d of August the *dénouement* took place in the presence of a select company of invited guests. Each of the unbelievers had his part assigned, and

no contingency could have arisen which was unprovided for. All were provided with inextinguishable fusees, and held them ready to strike, if the light should be put out by Mr Hull, who always sat by the lamp. If the medium should attempt one of her feats, her escape from exposure was impossible. After waiting the usual time there appeared a female draped in white, and thickly veiled. It was a figure which had repeatedly come to commune with Dr Greene, and had promised to materialize at this time. At his request, couched in winning terms, she placed her hand in his, and was at once, in spite of vigorous resistance, drawn out into the room, unveiled, and found to be Mrs Hull herself. While this was going on, Dr Gerrish had drawn the curtain aside and discovered the unoccupied stool, the empty skirt, and a little pile of female wearing apparel. It was exactly what was expected. Of course the medium was deeply moved; but she had the assurance to send after the doctors, declaring her innocence on all previous occasions, insisting on the reality of materialization, and begging them to let her "sit" for them again under any test conditions they chose to impose. Although they saw at once that this was simply an effort to gain time in the desperate hope that something might happen to avert the ruin which threatened her, they agreed to give her a chance, but when the appointed time arrived she had not the courage to face them.—*Boston Medical and Surgical Journal*, 5th October.

MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By W. Handsel Griffiths, Ph.D., L.R.C.P. Ed., Licentiate of the Royal College of Surgeons of Edinburgh; Lecturer on Medical Chemistry in the Ledwich School of Medicine, Dublin; Corresponding Member of the Therapeutical Society of Paris; Honorary Member of the Ontario and Chicago Colleges of Pharmacy, etc.; Librarian to the Royal College of Surgeons in Ireland.

[The author of these Reports will be glad to receive any books, pamphlets, or papers relating to Materia Medica or Therapeutics. They may be forwarded through the agencies of the *Edinburgh Medical Journal.*]

Salicine and Salicylic Acid.—Professor Senator finds that salicine given in doses of from 2½ to 6 grammes lessens the temperature in some febrile diseases as certainly as does salicylic acid. According to Ranke, Lehmann, and others, the acid is converted into salicine in the blood. Salicylate of ammonia is recommended by Dr Martenson of St Petersburg as a substitute for salicylic acid. It is easily soluble in water and alcohol, and has a sweet taste. It may be made by saturating an aqueous emulsion of the acid with ammonia or carbonate of ammonia.—*Centralblatt Med. Wiss.*, No. 14, 1876.

In an interesting article in the *Practitioner* for June on "Febrifuges," by Professor Binz, the mode of action of salicylic acid and of salicylate of soda is very fully considered. During the past few months very abundant evidence has been brought forward to demonstrate the value of salicine and salicylic acid as remedial

agents in acute rheumatism. In the *British Medical Journal*, 3d June, Dr Hugh B. Brew records a case of rheumatic fever which he treated successfully with salicine in doses of 12 grains at first, and subsequently 15 grains every third hour. In the same journal Dr G. T. Schofield relates that he has treated thirteen typical cases of rheumatic fever with salicine, and has found in almost every instance very rapid abatement of the symptoms and quick recovery from the disease. He gives details of two cases so treated. He gave the medicine in doses of 15 or 30 grains, according to the age of the patient and the severity of the symptoms. With regard to its mode of administration, he finds that patients take it best in a small quantity of milk. In the *Lancet* for 1st July, the almost specific power which salicine seems to possess of arresting the course of certain cases of acute rheumatism with high temperature is well exemplified by a case, under the care of Dr Ralfe, in the Seamen's Hospital, Greenwich. The salicine was given in doses of 10 grains every half-hour. In the *British Medical Journal*, 8th July, Mr J. Pollard records a severe case of rheumatic fever which he treated successfully with salicine in 10-grain doses every third hour. When the medicine had been temporarily discontinued the pain and swelling in the joints recurred, and the temperature rose, but these symptoms gave way almost immediately on resuming the administration of the salicine. According to a letter addressed by Mr F. Ensor, Surgeon to the Provincial Hospital, Port Elizabeth, to Dr Maclagan, and published in the *Lancet*, 17th June, a decoction of willow-tops has long been a favourite remedy for rheumatic fever among the Hottentots of South Africa.

In the *Lancet* for 20th May, two cases of rheumatic fever, under the care of Dr Sieveking, are recorded as having been treated successfully with salicylic acid in the wards of St Mary's Hospital. The medicine was given in 20-grain doses hourly for six hours. In the same journal for 1st July, four additional cases similarly treated by the same physician are reported. In the *Lancet* for 3d June, Dr Walter Fergus also relates several cases of acute rheumatism which he treated successfully with salicylic acid. He finds it best to dissolve the acid (as advised by Reiss) in spirit of wine, and then to add glycerine to about half of the bulk of the mixture; a drachm of concentrated aqua carui removes all disagreeable taste, and Dr Fergus states that no burning of the throat is complained of in the use of this formula.

In the *Canada Medical and Surgical Journal*, August, a case of acute rheumatism successfully treated by the acid is given by Dr H. C. Burritt. In this case the disease was arrested in less than twenty-four hours from the time of the administration of the acid with about 80 grains, and completely annihilated in four days with about 220 grains.

Dr Katz records the successful treatment of a case of acute rheumatism by salicylic acid in 15-grain doses hourly. Nitrate of potash, quinine, and morphia had been given previously for ten

days without affording relief. Forty-eight hours after the commencement of the treatment by salicylic acid the patient was out of bed and could walk without assistance.—*Deutsche Medicinische Wochenschrift*, No. 4, 1876. In another case Dr Hildebrandt gave successfully 4 grains of the acid in fennel water every hour.—*Deutsche Med. Wochenschrift*, No. 7, 1876. Dr Stenitz has also administered salicylic acid with success in several cases of acute rheumatism. He gives the acid in doses of about 7½ grains hourly. —*Allgemeine Medicin Central-Zeitung*, 4th March 1876. The acid has also been given with success by Dr Zeuffell (*Wurtemburg Med. Correspond-Blatt*, No. 5, 1876), and by Dr Putnam (*Boston Med. Surg. Jl.*, 24th Feb. 1876), and others.

In the *British Medical Journal*, 17th June, Dr Talfourd Jones relates a case of acute rheumatism which yielded rapidly under the influence of the soda salt. In the first twenty-four hours of treatment the patient took eight doses of 30 grains each. In the succeeding period of twenty-four hours he took six doses of 20 grains; in the third period he had three doses of 20 grains; and during the fourth period he had two doses of 20 grains. Altogether in four days he had 450 grains. On the second day of treatment, after taking the seventh dose, the patient was absolutely free from pain. The temperature fell within twenty-four hours from 101·2° to 99·8°; in the next period to 98°; and on the third day to 97·4°. The pulse fell, at the end of twenty-four hours, from 92 to 80, and thence to 70 on the third day.

Professor Ebstein has a paper in the *Berliner Klinische Wochenschrift*, 12th June, relating the history of two cases of diabetes, in the first of which carbolic acid and other remedies proved unsatisfactory, but salicylate of soda completely removed the diabetic symptoms, while in the second case there was considerable improvement from the same remedy.

Dr G. Parker May puts on record a case of endocarditis which was successfully treated by scruple doses of salicine in a mixture of glycerine water every fourth hour.—*Brit. Med. Journal*, 17th June.

Dr E. H. Jackson treats otorrhœa by first syringing the ear with tepid soft water. After the ear is thoroughly cleansed, a speculum is adjusted and two grains of salicine with four grains of calcined magnesia are blown into the ear through a quill; a small piece of cotton is then inserted. The process should be repeated every two or three days.—*Can. Med. Record*, June.

Mr J. A. Erskine Stuart states (*British Medical Journal*, 3d June) that he finds that a most characteristic catarrh of the mucous membrane of the nose and pharynx and mouth is set up by salicylic acid, whether it be given by the mouth or per rectum. He regards this as a valuable fact with reference to the treatment of diphtheria by this agent, as its beneficial effect in that disease must be both local and general. With reference to its irritant action on the stomach, he affirms that, although he took as much as two scruples at a dose, he never experienced the slightest discomfort in that organ.

According to the experiments of Mr Baden Benger, which he described at the recent meeting of the British Pharmaceutical Conference held at Glasgow, salicylic acid is not excreted in an active condition; the urine of patients taking salicylic acid exerting no retarding action on the production of essential oil of mustard or oil of bitter almonds, and not hindering in the slightest degree the action of half a grain of yeast on a solution of forty grains of sugar.

At the meeting of the British Pharmaceutical Conference at Glasgow, last September, Mr J. C. Hunter stated, as the result of his researches, that salicylic acid is more powerful to prevent the formation of infusive animalcules than either carbolic acid or creosote, when these are used in the same quantities as the salicylic acid and exposed to the same conditions.

Solution of Salicylic Acid.—The following is M. Cassans' formula:—

Salicylic. acid., ʒi.
Ammon. citratis, ʒss.
Spt. vin. gall., ℥i.
Aq. dest., ℥v.

The citrate of ammonia gives no unpleasant taste to the mixture.—*Bull. Gén de Thér.*, 30th April.

The following is Mr C. L. Mitchell's recipe for obtaining a concentrated solution of the acid:—

Salicylic. acid., ʒii.
Sodii biborat., ʒi.
Glycerine, q. s.

Mix the acid and borax with ʒiv. of glycerine, heat gently until dissolved, then add glycerine to make the measure ℥i. This solution contains 25 per cent. of salicylic acid. According to Mr Charles Becker, borax in the proportion of two parts to one part of the acid and fifty parts of water, precipitates slightly after twenty-four hours; a solution of one part each of acid and borax in five of glycerine and twenty-five of water is permanent, while the same proportion of borax, acid, and glycerine in fifty parts of water will precipitate in twenty-four hours. A solution of one part acid to two of borax in twelve of glycerine made with heat is permanent, but when one part of this solution is diluted with three of water, a cloudiness appears in three hours.—*American Journal of Pharmacy*, July.

The following is the formula recommended in *New Remedies*, July, for the solution of salicylic acid:—

Salicylic acid, ʒi.
Pot. acetatis, ʒi.
Glycerine, ʒi.
Water, q. s., ad ℥.

Mix and dissolve by shaking. This solution contains one grain of the acid in eight minims. It may be made much stronger. Acetate of lime, of soda, or of ammonia are also applicable as solvents.

Action of Gelsemium.—Dr Gray, of Meriden, Connecticut, states that he has never been disappointed with gelsemium as an agent for reducing temperature. He puts on record several cases illustrative of the beneficial influence of this drug in typhoid fever, in fever after perineal section for stricture, and in scarlet fever. Dr Gray thinks that the full effects are obtained by small frequently repeated doses—two drops of the tincture for an adult every hour until the fever abates, and then every two hours until free perspiration is induced—given thus, its reported ill effects on the heart and nerves are not produced. He generally combines bromide of potassium with it.—*New York Medical Record,* 10th June 1876.

Dr Burdon Sanderson shows that gelsemium exercises a remarkable influence on the respiration. When given in fatal doses, death takes place, as in poisoning by curare, by gradual arrest of the respiratory movements, but this is due not, as in the case of curare, to suspension of the functions either of the motor nerves or of the muscles to which they are distributed, but probably to a direct influence on the cerebro-spinal centres, particularly on those parts which preside over the rhythmical respiratory movements.—*Lancet,* 1st April.

Professor Sydney Ringer and Dr Murrell have published some additional observations on the action of gelsemium since our last report on that substance. To excite the symptoms characteristic of gelsemium they generally found it necessary to give drachm doses hourly, for three hours, of a tincture made with one part of the root to four of rectified spirit. Some individuals are much more prone to be affected by it than others. The following is the train of symptoms usually produced by the drug:—First, pain in the brows, followed soon by giddiness, then by pain in the eyeballs, and soon after by dimness of sight. A larger dose produces double vision without apparent squinting, with a sensation of great heaviness in the upper eyelids, with somewhat contracted pupils. A still larger dose causes drooping of the upper lid, sometimes extremely marked, so much so that the eye can be opened only by strong and painful effort. The patient next complains of weakness in the legs, but the authors did not push the drug beyond the production of this symptom. When well under the influence of the drug, the patient is pale, with a heavy sleepy look; patients complain of dryness of the mouth, though the tongue appears moist. The authors noticed that the eyes of rabbits became very prominent after poisoning with gelsemium; they dropped a solution of the alkaloid into the eye of a cat, and found that, though the pupil was widely dilated, prominence of the eyeball was not caused. Rabbits are much more susceptible to the drug than cats. The bulging of the eyeballs in the former animals is not due to asphyxia, as proved by experiment, and the writers therefore refer it to paralysis of the orbital muscles. Gelsemium paralyzes the muscles of the eyeballs, and hence the eyeballs become a little more prominent; asphyxia supervenes, causes congestion of the head, and then of the orbit; and as the

muscles of this part are more or less paralyzed, the congestion of the vessels forces out the eyeball. Convulsions increase the congestion, and so contribute to the prominence of the eyes. Artificial respiration removes the congestion, and the eyeballs regain their natural position. The authors believe that gelsemium has an especial action on the eye-muscles, for (1) In man the eye is the first part attacked; (2) The prominence of the poisoned eye takes place before any general paralysis occurs; (3) When the eyes were very prominent, the animal could still quickly shut its eyelids, showing at least that the motor muscles of the eyeball are affected before and to a greater extent than the orbicular muscle. They found their opinion that it is the nerves that are affected, on the fact that the eye to which the poison has been applied protrudes first and is always the most prominent. If the poison were absorbed and acted on the centre of the motor nerves of the eye, both eyeballs would be equally affected; but, on the contrary, the poisoned eye bulges more than the other, hence it is probable that the drug poisons the terminations of the motor nerves of the eye, though the centre of these nerves may also be affected.

The effects of the local application of gelsemium to the rabbit's eye led the investigators to try the drug on the human subject. Wide dilatation of the pupils was produced, but no protuberance of the eyeball was observed. They state that their observations on man show that gelsemium paralyzes the sixth nerve first, for the external rectus is weakened before the other muscles, and it afterwards affects the third nerve, for the inward, upward, and downward movements of the eye are impaired, and ptosis is often marked. Strange to say, the internal administration of gelsemium produces an effect opposite to that occasioned by its local application with itself. When given by the mouth in doses sufficient to produce symptoms, in every instance but one it caused contraction of the pupil. The writers confirm the observation of Dr O. Berger, that dilatation of the pupils, in poisoned animals, occurs only when asphyxia from paralysis of respiration has set in, and that artificial respiration at once causes the pupils to contract. They find, as the result of five experiments, that the pupils decidedly contract before dilating when exposed to the topical action of the drug. That the contraction is not due to irritation was proved experimentally.—*Lancet,* 20th May, 15th July.

Ergot.—In the *Pharmaceutical Journal* for 17th June is an elaborate paper by Professor Dragendorff, relative to the isolation of the active principle and other constituents of ergot.

Professor Buchheim states that he has failed to isolate completely the active principle of ergot, and he thinks that for practical medical purposes the infusion of the freshly prepared extract will alone remain available. When ergotine is used for subcutaneous injections it should be freshly prepared, and ought to be carefully

neutralized by carbonate of soda, as it contains much lactic acid, besides quantities of leucine.—*Klinische Wochenschrift*, quoted in *Pharm Jl.*, 1st July.

(*a.*) *Ergot in Diarrhœa.*—A writer in the *New York Medical Record* affirms that he has obtained marked success with the fluid extract of ergot in the treatment of diarrhœa. He assumes that the drug causes contraction of the involuntary muscular fibres, and in so doing relieves the atony of the vessels of the intestinal mucous membrane and the consequent hyperæmia of the capillaries, and thus prevents the transudation of the watery portions of the blood. —Quoted in *Lancet*, 16th September.

(*b.*) *Ergot in Purpura.*—Dr Bulkley advocates the employment of ergot hypodermically in purpura. From 10 to 15 minims (or in exceptional cases 20 to 30 minims) of the fluid extract may be injected every hour and a half about the pectoral muscles or sides of the chest. Cleanliness of the syringe, slowness of injection, and depth of insertion should be observed. Dr Wey states that Dr Squibb's solution of aqueous extract (a minim representing a grain) is less irritating and less likely to produce abscesses than the ordinary fluid extract.—*New York Medical Record*, 1st July.

(*c.*) *Ergotine subcutaneously.*—In the *American Journal of Medical Science* for July, Dr R. Crockett has a short paper, in which he relates the successful treatment of subcutaneous injections of ergotine of a case of splenic leukæmia, an indurated mammary tumour, and a bronchocele. His injections consisted of 4 grains of ergotine dissolved in distilled water and glycerine, amounting to 15 minims.

(*d.*) *Ergot in Enlarged Spleen.*—Dr J. H. Miller records a case of greatly enlarged spleen which he succeeded in reducing by hypodermic injections of ergot after failure with quinine, iodine, chloride of ammonium, etc.—*New York Medical Record*, 15th April.

(*e.*) *Ergot in Prolapsus.*—Mr S. Giles (*Lancet*, 3d June) states that for more than four years he has used the liquid extract of ergot in nearly every case of prolapsus that has come under his care. He has found little or no benefit from this drug, except in cases where the prolapsus has come under treatment shortly after getting up from childbed—in fact, in cases where there is improper involution or laxity of the parts; in such cases the ergot treatment has been brilliant.

(*f.*) *Ergot in Uterine Catarrh.*—Dr Goreleitschenko (*St Petersburg Med. Wochens.*, 3d June) treats cases of uterine catarrh by pencilling the canal of the cervix uteri with solution of ergot (ergotine 2 scruples, water and glycerine of each 2 drachms), leaving the brush within the canal for from one to three minutes. In 22 out of 29 cases of chronic metritis attended with chronic catarrh so treated a cure was effected, but in the other cases the improvement which ensued was soon followed by relapse.

(*g.*) *Ergot in Fibrous Tumours of the Uterus.*—The *British Medical Journal*, 17th June, contains a leading article on the treatment of fibrous tumours of the uterus by ergot. Tumours which have

become of a cartilaginous hardness, or masses of earthy matter, cannot be absorbed, nor can they be disintegrated by lack of nutrition. Again, the power of contraction in some tumours is almost gone. Tumours, however, of a single nucleus are generally very vascular, and the muscular fibres are hypertrophied as in pregnancy. These grow rapidly, and, at the same time, are most easily affected by ergot. In Dr Atthill's more recent cases the injection of ergot was not followed by the formation of sores. Instead of adding glycerine to the solution of ergot as recommended by Hildebrandt, he now employs a solution of one part of liquid extract of ergot (B. P.) in two of water, and of this he injects from 15 to 20 minims at a time; he always inserts the needle into the gluteus muscle, making it penetrate to the depth of more than an inch.—*Brit. Med. Jl.*, 2d Sept.

Part Fourth.

MEDICAL NEWS.

Chair of Physiology in the University of Glasgow.—We have much pleasure in recording the election of Dr J. G. M'Kendrick, Lecturer on Physiology in the Edinburgh Extramural School, to this important Chair. In the first rank of scientific investigators, of untiring industry, and excellent business habits, no better selection could have been made. His place in the Edinburgh Medical School and among his friends will be very hard to fill.

Chair of Practice of Physic in the University of Edinburgh.—This appointment, the blue riband of British Physic, will have probably been made by the time this Journal is in the hands of our readers. At present we can only tell that four candidates are before the Curators, Dr G. W. Balfour, Professor Gairdner of Glasgow, Dr Rutherford Haldane, and Dr Grainger Stewart.

OBITUARY.

Thomas Strethill Wright, M.D., F.R.C.P.—This amiable and accomplished gentleman died at his residence in Edinburgh, on 13th October 1876. He has for some years past been in declining health, from chronic gastric derangement, and had given up much of his work. When in health, besides the work of his practice, and his duties as an Examiner to the College of Physicians, he was a most industrious worker in science. In zoology, botany, and physics, especially in relation to electricity, he had few equals in the extent, variety, and precision of his knowledge. He had, in earlier days, been a Physician to the Royal Infirmary, and to both the large Dispensaries of Edinburgh. He was a constant attendant at, and for a time President of, the Royal Physical Society.

THOMAS LAYCOCK, Born 12th Aug. 1812, Died 21st Sept. 1876.

Death, which has been so busy in the Medical Faculty of the University during the last ten years, has added to the number of the illustrious names that have gone before that of Thomas Laycock, one not unworthy to follow and rank with Goodsir, Simpson, Syme, and Bennett. The obituary notices in the daily papers were so complete, that it is unnecessary we should do more than direct attention to the leading features in the life and works of the late Dr Laycock. His professional life began in the old orthodox method of apprenticeship to a surgeon, then followed a complete curriculum at University College, afterwards a session at Paris, and subsequently one at Göttingen. At the latter place he obtained the degree of M.D.; the degree bears on it that he passed in so singularly distinguished a manner as to receive "Summâ cum laude."

He now settled in York as a practitioner, where he held various hospital appointments. In 1846 he was appointed to the Chair of Medicine there, and discharged the duties of that position until his removal to Edinburgh in 1855.

The resignation by Professor Alison of the Chair of Practice of Physic, placed in the hands of the Town Council the appointment to one of the most important posts in the Medical Faculty. There were eight candidates, one of whom was Dr Laycock; and it was no discredit to the others (even although among them were Gairdner and Bennett) that he was successful, for by this time his reputation as an original thinker and investigator in almost all branches of medical science, and the value of his numerous and varied writings, were so thoroughly acknowledged that he had no difficulty in producing such evidence of his fitness for the Chair as fully justified his appointment to it.

He entered on his duties as Professor of Practice of Physic and of Clinical Medicine in the session 1855-56, and continued to discharge the duties of these offices till within a few months of his death. His immediate connection with Edinburgh dates from his appointment, although for many years previously he had been a contributor to this Journal.

The duties of a Professor are of a twofold nature: first, there is the necessity of providing a suitable course of instruction for the students (upon whose numbers in our Scotch Universities the income of the Professor largely depends); and second, there is the necessity for the Professor, by his investigations and writings, extending the reputation of the University, and with it his own. Dr Laycock cannot be said to have succeeded in the first of these so well as he deserved, and this was owing to causes, partly within and partly beyond his own control. The short space of four years only allows the student one course of Practice of Physic previous to his examination in it; he will naturally prefer the concrete lectures which prepare him most easily for the details of examination to the more or less abstract lectures (such as were delivered by Dr Laycock),

which, though more comprehensive, and calculated to give a broader view of medical science, are but ill adapted for the necessary "cram" of examination work; to this may be attributed the fact that Dr Laycock attracted fewer students to his class than the importance of the subject demanded. The writer of this has frequently remonstrated with Dr Laycock on this subject, but was always told in reply that a Professor's duty was not to present to his pupils a compilation from authors, as they could read these for themselves, but to give them such a course of lectures, founded upon his own experience and observation, as would make them think for themselves, and enable them to take a more liberal view of the subject than could be derived from books. Whatever may be our opinion on this point, we cannot but admire the man who, at considerable pecuniary sacrifice, denied himself the popularity of large classes in order that he might consistently carry out what he considered the ideal of professorial duty.

With regard to the second, there is no difficulty in saying that Dr Laycock fully sustained and extended the credit of the University by his writings. These were so varied that it is impossible to enumerate them, much less to give an idea of their merits and demerits; there are over 200 of them, and we refer only to a few of them. The papers on "Epidemiology," "Vital Statistics," and "Public Hygiene," published at times when there was much neglect of these subjects, show a complete comprehension of this important branch of medical science, and have aided, to a considerable extent, in giving the subject of public health the prominence it now occupies. The treatise on the Nervous Diseases of Women, 1840, and republished in America, received a considerable amount of criticism, which was on the whole highly favourable; on account of the many original ideas contained in it and the practical tendency of the work, Professor Meigs (in his book on "Females and their Diseases") says of it, "Dr Laycock, in that most admirable work of his on Hysteria, a work for which he ought to be immortalized as proving in him powers of judgment, reasoning, and perception, beyond what appertains to most mortals, gives us some extraordinary examples of *morbi simulati.* It is within the reach of every medical student, and there is no medical student should be without it."

The next considerable work is "Mind and Brain," published in 1860, second edition 1869, a work which it is impossible to appreciate without the most careful reading, and regarding which we give two of the criticisms that appeared contemporaneously with its publication. "It is not every day we meet with broad and free intellects that know how to make Plato and Bacon shake hands, Cudworth and Combe kiss each other, while innate ideas (which Locke is thought to have exploded) walk peaceably the highway with Christian Theology on the right hand, and Histology on the left. But this large and liberal faculty of appreciation, Dr Laycock possesses in a very high degree, and it is this which to our mind gives the great charm to his book."—*Quarterly Review.*

"It would be impossible to convey in a brief form a just notice of the final portion of Dr Laycock's work; his examination of the functions, evolutions, and organology of the nervous system, whether it be regarded simply as a summary of our knowledge on these subjects, or on account of its suggestiveness, is in the highest degree interesting. He places the whole of our knowledge in a clearer light and upon a firmer foundation, and his conclusions and suggestions are admirably adapted to facilitate and to give an additional impetus to further research."—*Journal of Psychological Medicine.*

The "Principles and Methods of Medical Observation and Research," published in 1856, second edition 1864, was intended as an introduction to the study of clinical medicine, is carefully written, states clearly the views of the author, and contains a valuable classification of diseases. Of his more recent productions, perhaps the most interesting are "The Nervous System in Dropsies," "Reflex Function of the Brain," "Neurotic Albuminuria," and "Laws of Personal and Ancestral Memory," and they give some of Dr Laycock's views of the influence of the nervous system, a field of observation that he had made peculiarly his own. His earliest essay on the "Reflex Function of the Brain" appeared in 1844, and he claimed priority in this important discovery.

As a Professor of Clinical Medicine, Dr Laycock brought to the bedside a long acquaintance with, and intimate knowledge of, disease, and his pupils will long remember the many curious points he noticed in each case, which would have passed unobserved, but for his keen perception. His knowledge of Therapeutics was extensive, and he taught many valuable lessons, as well in the withholding of drugs as in their administration. Consideration for the feelings of hospital patients, he inculcated by precept and example.

To Dr Laycock belongs the credit of introducing a course of Medical Psychology, which he taught for many years, and he succeeded in attracting many students to his course of lectures, and of practical asylum instruction; many of our most eminent authorities on insanity can trace to his class-room their introduction to the specialty they have chosen.

It is difficult to estimate what influence the works of Dr Laycock have had, and will have, on the formation of opinions on the subjects of which they treat; that some of them have secured permanent places in our literature, there can be no doubt; if others have failed, it is because their author ever preferred speculative reasoning to that experimental research which, though it may give less brilliant, yet gives more permanent and valuable results.

It must be clear from what has been already said that Dr Laycock was an able, hard-working, accomplished man; but some will doubt if he was altogether the right man in the right place, as Professor of the Practice of Physic in the Edinburgh School. His style of mind, acute, speculative, sometimes finical, was not such as to leave a deep mark on the young practitioners who annually

emerge from the gates of the University. The teaching of his eminent predecessors in the Chair, Cullen, the Gregorys, and Alison, was of a broader and weightier kind. It had less to do with mere curiosities and doubtful theories and analogies; it dealt more with ascertained facts and important practical conclusions. It must be admitted, that in the clinical wards of the Royal Infirmary, Dr Laycock stood high in the estimation of the more intelligent students, and of the house-physicians—who are in general excellent judges; and in many a difficult and obscure case he formed a happy diagnosis.

All who witnessed his career as a conscientious practitioner and clinical teacher, must have admired the zeal, the patience, and, we will add, the English spirit and pluck, with which he fulfilled his public duties in spite of much prolonged bodily weakness and suffering.

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Part First.

ORIGINAL COMMUNICATIONS.

Article I.—*The Father of Medicine.*[1] By J. Matthews Duncan, M.D., LL.D.

Among the greatest men of all times appears the majestic figure of Hippocrates, called the Father of Medicine, who should, in all his main features at least, be familiar to students of the Healing Art. There existed not one only, but a line of physicians bearing this name, in which the second is held to be the chief, and to be referred to when another is not specially designated. The works of Hippocrates consist of a considerable collection of articles or pamphlets on the history, philosophy, and ethics of medicine, on the causes, prognostics, and treatment of disease, and on special diseases and accidents. In this discourse reference is made exclusively to his medical writings. He was a surgeon as well as a physician; but his position and merits as a surgeon, great though they are, do not come within the scope of the present discussion.

The ingenuity of the learned has been extensively and laboriously exerted to decide which among the heap of Hippocratic treatises are the genuine works of Hippocrates the Second, which are not. The questions raised in their erudite writings, while they are of secondary importance, and will probably never be conclusively settled, do not come within the reach of the present discourse. In accordance with common practice, Hippocrates and the Hippocratic writings may be treated as a unity, whose further decomposition can produce no important result beyond the satisfaction of a laudable literary curiosity. The grandeur, the beauty, the value of the Homeric poems will be little modified should it come to be decided that they are the work of several men at different times, not of one man, as is popularly believed; and so it is with the import and value of the works of the Father of Medicine.

The purpose of this discourse is to justify the reverence and honour given to Hippocrates, and, if possible, to deter the ignorant and the pedantic from calling upon his name in vain. To prove the present desirability of these objects by special examples would

[1] The opening Address of the 139th Session, 1876-77, of the Royal Medical Society, delivered 10th November.

be both painful and invidious; we require only to refer in a general way to modern medical literature. No name is more frequently cited than that of Hippocrates, yet almost never with a just or full appreciation of his merits, while his authority is on innumerable occasions called in to support views with which he had nothing in common. The most recent and advanced discoveries are recognised in an author who lived more than two thousand years ago, and who was ignorant of the elements of the subject. This process is not of recent growth, for the discoveries even of Harvey were, soon after being published, found to be anticipated by Hippocrates!

In my own day, his writings have been referred to by eminent men as authoritative for us in regard to pleurisy, to Bright's disease, and to heart disease, and many others. If the old gentleman were alive, he might with complacence and pride receive the homage due to his great merits, and especially to his, the earliest, attempts to discriminate and describe diseases. He might admit that he occasionally succeeded in drawing faint and inaccurate outlines of some maladies, scarcely to be recognised and identified by us now; but he would spurn the foolish flatterers who ascribe to him knowledge which was not dreamt of till two thousand years after his time. The ordinary practitioner of our day knows almost infinitely more of disease than did the great Father of Medicine. It would be as easy to find the latest discoveries of astronomy and of chemistry in the works of the astrologers and alchemists, as to find recent medicine anticipated in the Hippocratic writings.

In the history of Medicine there are only two great epochs—that of Hippocrates, about 400 B.C.; and that of the fifteenth century. The former was that of the birth of medicine, and the father was Hippocrates. The latter was the foundation of medical science by the anatomists and physiologists, of whom Vesalius and Harvey are generally made the representatives. The former was one of the many glorious products of Greece. The latter was one of the many glorious products of Northern Italy. At present we cannot foresee even the probability of the advent of another era so great in medicine as these, but may reasonably anticipate a series of periods marked by brilliant discoveries, such as have already been continuously produced since the revival of learning, or by wide generalizations for which the way would seem to be already prepared.

It is the custom of historians to describe the curative proceedings of the priests in their temples as the first stage or epoch in the progress of medicine, as distinguished from surgery; but it is much more correct to say that it began with Hippocrates. There was, in truth, no medicine before him, but only a seeking from the gods by prayers, or by incantations and charms, such aid as resulted in cures properly so called. There was no substantial approach to knowledge of the human frame and constitution, and there had been no methodical observation of disease; there could be nothing

worthy of the name of medicine. These ante-Hippocratic days were the era of cure, not of treatment; or of cure as distinguished from treatment: and one of Hippocrates's chief claims to our honour is that he despised and rejected the whole affair. His chapter on the morbus sacer, considering the time when, and the circumstances under which, it was written, is an imperishable monument to his glory, a proof of his courage and his wisdom. Its teaching is nearly as much needed now as ever it was; for, considering our time and circumstances, we have, in the specifics and many other cures of our day, grosser superstition than Hippocrates had to encounter. Cures occur only in the hands of the ignorant and superstitious; and the light of science should, ere this, have rendered them ridiculous. But it is not so. One of the most renowned physicians of modern times deliberately recommends a metallic salt for headache, as he had seen it cure a case! another most eminent and respected physician recommends a peculiar saline as a cure of a rare and ill-understood kidney disease, for he had tried it in one case!

The cures in the temples of Æsculapius are said to have been resuscitated in another form soon after Hippocrates showed their utter vanity. But they have been, indeed, never extinct. They flourished vigorously in the middle ages, under the priestly garb of the Christianity of the time, and they still survive in various quarters. They flourished notoriously even in the time of Harvey, for then (and long after) the king touched for the "evil." They are almost daily produced now by our most renowned physicians, as I have just exemplified, and as I could further abundantly prove, did I not prefer to avoid exciting the nausea of all scientific men. The whole homœopathic system, so far as it is peculiar, is composed of this nonsense, and of this alone.

Hippocrates was the Father of Medicine—not any priest, or priestly system. There were, no doubt, before Hippocrates, much valuable medical skill, and many useful appliances; but these do not constitute medicine as he established it, and as we teach it. These were an humble but valuable class of proceedings, as much used now as ever they were; but, even as accumulated in our day, not constituting, indeed contributing very little towards constituting, a system of medicine. Were it just to go back to the priests of Æsculapius as forming a step in the progress of medicine, I should not allow the retrospective historical scrutiny to stop there; for I would, with equal justice, invoke the principles of Darwin, and date the beginning of medicine further back than the historical period. It may be held as certain that before the medicine to be found in the history of the creation of man, there was the medicine of the brutes; and the simple faith and uncomplicated proceeding of the dog who seeks his cure by an emetic, chosen among the herbs of the field, is more to be admired and respected than the falsities of a credulous priesthood; or, in legitimate succession, the mystery of the aqua epidemica, or the

Mithridate, or the Venice treacle, as used by the so-called Father of English Medicine, or the specifics of this day.

The first epoch of medicine was an era of medical knowledge, as distinguished from medical science. Till the structure of the healthy human frame was revealed by the labours of the anatomists, there could be no science of medicine properly so called. Anatomy is itself, in this sense, not a science, unless, indeed, that name is attached to mere observations. Observation is the essential foundation of science, and in the works of Hippocrates there is a marvellous accumulation of it; just as there is in the medical writings of our own day. But, in our day, anatomy and physiology have come to form the foundations of Medical Science, which can scarcely be said to have existed before decided progress was made in them.

To exclude mere observations from science is not to throw discredit on them. A good observer is a man endowed with a rare faculty, which may amount to genius; as is attested by many of the works of our justly renowned mere naturalists or mere anatomists. Hippocrates was a great observer, as his works abundantly testify. At his time, observations were the first and great desideratum, as is the case still; but in his day there was room for little else than this accumulation of materials; and this cannot now be said of large departments of medicine.

Although in the early periods of medicine the cultivation of observation was, as Hippocrates carefully stated, the great, almost the only, requirement, it was impossible to repress theorizing; and of this Hippocrates himself furnishes many remarkable examples. But the tendency could not then, and cannot now, be kept within due bounds. The true mode of progress, by observation, came to be neglected; and the field of medicine was divided between the dogmatists and the empirics. We should nowadays call them the philosophizers and the mere practitioners. Of course there are considerable differences between the dogmatists of ancient times and the philosophizers of our day, arising from the great increase of medical knowledge and advance of medical science; and, for the same reason, there is much difference between the empirics and our mere practitioners. But, in scientific method, or rather in despite of scientific method, the two modern classes are identical with the two old divisions. The dogmatists trust too much to mere reason, struggle too ardently to anticipate the solid progress of science, conduct their inductions on too narrow a basis, reason from general principles which have themselves insufficient foundation. The empirics have a blind and unreasoning confidence in what they call experience; and, neglectful of the errors of their predecessors, allow themselves to be guided by mere appearances. In our day, neither of these classes avows a disregard for science, but they really have it, if they are to be judged by their works, not by their professions.

This digression will facilitate the estimate of Hippocrates which

we propose to sketch. He was neither a mere dogmatist, nor a mere empiric; and, if he had lived in our day, would not be classed among the philosophizers or mere practitioners, but he would have taken his place among the limited class of scientific practitioners, or those who cherish science as the only substantial basis of practice (but who, nevertheless, allow themselves an extravagant amount of pseudo-philosophic and empirical digressions).

The historians of medicine, in pursuing their tedious and almost profitless task, describe system after system, that of Hippocrates being nearly the earliest; a historical mimicking of the progress of science, which seems delightful to them, but it is the mistake of the bobbing about of a bear for real dancing. There is no science in the philosophic basis of the system of Hippocrates; in his four humours, his coction, and crasis. It is a philosophic toy which he invented, or a hypothesis which he introduced. In all times these hypotheses have been supplied, as they are still; and they are, no doubt, necessary to satisfy the philosophic cravings of mankind. They represent stages in the historical, not the real progress of medicine. They are partially embodied in such terms as "Nature," "Vis medicatrix naturæ," "Archæus," "Anima," "Vital principle." They embrace too little of that physical and chemical knowledge, which, combined with due observation, constitutes the whole of medical science. So far as they produced such hypotheses, Hippocrates, Galen, Van Helmont, Stahl, Hoffmann, Boerhaave, and Cullen, are mere philosophic triflers; prematurely, but yet as impelled by necessity mimicking scientific theory, and guiding generations of medical men by *ignes fatui.* They are the jigging bears, and all the doctors jig after them, and noisily rejoice and believe they are gracefully dancing to the music of the spheres.

There are only two classes of great medical men and medical writings, the scientific and the non-scientific; and these last are subdivided into the dogmatists or philosophizers, and the empirics or mere practitioners. The dogmatists caricature true philosophy, the empirics genuine experience. But it is not to be supposed that every individual physician or every individual work can be ranged under these categories. Even the greatest men are very imperfect, and almost necessarily commingle in their productions the fancy of the philosophizer, the rashness of the empiric, and the caution of the scientific man. .Philosophizing and empiricism are probably necessary evils, and may even in some obscure way contribute to real progress.

As there really was no medical science, and as it was scarcely possible there should be any, before Harvey, so none is to be looked for in the writings of Hippocrates. What then of everlasting work did all the great medical men before Harvey do, and what are most great medical men now doing? In addition to being, in some degree, philosophizers and empirics, they have been

and are, by diligent observation and research, accumulating the materials necessary for the construction of science. This is the evidently necessary and everlasting work which they are doing, and in this work Hippocrates was the leader, and a great deal more.

Probably no man has ever done more or more difficult work, in the way of observation and research, than the great Hippocrates. Considering that before his day the ignorance of diseases, their classification, causes, symptoms, prognosis, and treatment, were as a *tabula rasa*, we cannot sufficiently admire and wonder at his genius, his labours, his success. He truly begat medical knowledge and medical work;—a good parent, to be admired, respected, imitated, by his loving children of all time. Had he done nothing else than this work, he would have been the greatest figure among the heroes of Medicine.

The individual feats in observation and research achieved by Jenner, by Laennec, by Bright, not to speak of some in our own time, were as grand as, and probably more difficult than, any done by Hippocrates; but they are small when compared with his in extent and in epoch.

But it is time now to state categorically what are the great things which Hippocrates did, and which entitle him to the undying fame which is his.

First of all, he was, I repeat, the Father of Medicine, and in this respect he must ever stand alone. Before his day, Medicine was a department of the duties of priests. The sick came to the temples to be healed, and no doubt they often were healed by the holy men, who could not fail to gather from the rawest experience some practical knowledge and skill, and to acquire confidence in their nostrums, whether they were useful, or ridiculous and useless. It is to be supposed that in those days, as in ours, priests were not disposed to part with their privileges; and the task of Hippocrates, in taking from them this great department of their labours and of their sources of emolument, must have been a very difficult one. The difficulty was, no doubt, enhanced by the fact that this great man, as one of themselves, born and bred in the cloth, would be naturally looked to as a friend and supporter. But for this work, his force of character was sufficiently great, and we may guess from his strong expressions regarding the divinities of disease and cure, that he had much opposition to encounter in his efforts to place the practice of medicine on a new and better footing than it held among the priests. He was, indeed, as we may judge from what he says, quite as clear from superstition and priestly influence as those supposed to be the most heterodox in our own day. He anticipated Lord Palmerston many ages, and would certainly have applauded that statesman's advice (to look to the drains), given to a clergy and people who were clamorous for prayers against the approaching scourge of cholera. There is one department of

medicine which was greatly studied by Hippocrates, namely, prognostics; and it is justly surmised that he may have derived much assistance here from the learning of the temples; for we know how ardently the priests strove to satisfy the cravings of all their devotees to peer into the future—a laudable craving, and one from the indulgence of which some of the skill may have been acquired which we find in many of his sagacious aphorisms.

But it was not the priests alone that Hippocrates had to encounter in carrying out his great work of establishing the separate individuality of his great child. Medicine was, if not a department of philosophy, at least a frequent topic for philosophic dialectics. Many of the great philosophers of his time dabbled in it; and he, no doubt, saw that they made a horrid mess of the matter; just as they continue to do to this day, whether the philosophers are regulars and profess in academic chairs, or the irregulars of lofty philosophical ambition. As he took the practice from the priests, so he took the theory from the philosophers; and it is devoutly to be wished that some of his followers would do a like service in our day—a more subtle and difficult work, but one of the same kind. No doubt Hippocrates himself went too far in the mere philosophic direction, in founding his system. But, as we have already said, no man is perfect; and there could be suggested many palliations of the proceeding of Hippocrates in substituting for older hypotheses that of the humours and their elaboration. We must be thankful to him for what he did, confessing that he at the same time made many, because nearly inevitable, errors.

It is difficult and vain to arrange in order of merit the various great achievements of Hippocrates, yet that which most clearly demonstrates his intellectual depth is the method of advancing medicine which he inculcated—the method of observation. He expelled philosophy and philosophers from medicine, and would not in his own day, nor in ours, be called a philosopher; yet he was the only genuine and true philosopher of them all. He brought medicine down from heaven to earth, and insisted on the prime necessity, truly the necessity of his day, to observe, to observe, to observe. That observation, which is the basis of science, the first step in the philosophy of medicine, he not only inculcated, but also liberally exemplified. Till long after his day, there could be no other philosophy for medicine; but his preaching was soon forgotten, and his ardent, but too little instructed immediate successors, soon came to neglect the accumulation of observations, and ran riot in dogmatic and empirical philosophizing, just as his latest successors still do.

It would be easy to point out striking evidences of his powers of observation, but it is a work of supererogation. The literature of the healing art was enriched by his cases, detailed accounts of single instances regarded as worthy of particular attention. Many

medical writers, even of our own day, have despised the laborious taking of cases; and they are foolish in thus rejecting the example of this great master. But the merit of Hippocrates, which we now insist upon, is not in his observations themselves, but in his recognition of the value of observation. We have already alluded to the common error of trying to find actual instruction in his observations, and laying in this the chief claim of Hippocrates to be studied nowadays. This is a great mistake. His observations are no doubt admirable, and would be more so, if we could, in regard to many important words, be sure of his meaning; but it is his method of advancing medicine by observation that forms his chief glory.

Some of his observations are very erroneous; many are very true, and have passed into common use and remain, as the *facies Hippocratica.* On one of his observations—the so-called Hippocratic succussion—I shall say a few words, because it has been often described as an indication of his genius; and it really was so, but not in the sense understood by most of his admirers. It was, in itself, a crude, and for us a worthless, observation; but it indicated a high kind of intellectual forethought amounting to genius. It showed that he strained after the true method of investigating diseases of the chest, when fluids were accumulated in it, that he was ready to test the value of all kinds of observation. Hippocrates is generally said to have used succussion to distinguish empyema from hydrothorax; but this is not well settled, for he certainly speaks of the use of succussion in the latter. Unfortunately, there is no sign derivable from succussion either in empyema or hydrothorax; and it is difficult to understand how Hippocrates should have expected it. It is, of course, only when these diseases are complicated with pneumothorax, that there can be use of succussion; but the error is perhaps palliated by our finding that, so lately as the time of the "First Lines of the Practice of Physic," the great Cullen made the same egregious mistake. Some attempts have been made at explaining the error, by supposing that an empyema was mistaken for a large vomica containing pus and air. But the fact is that nothing, in this point of view, can come of this investigation, nothing instructive to us as practitioners. Yet the investigation reveals to us the genius of Hippocrates, who, by his false or erroneous observations, anticipated, though in a very limited sense, the grand discoveries of Avenbrugger and Laennec.

It has been repeatedly said that Hippocrates anticipated Bacon; that his philosophy is really according to the inductive method; and while this is partially true, it is mainly a great exaggeration. All men who make elementary progress in science must follow this inductive method; they must accumulate facts by exercise of the faculty of observation. Had Hippocrates not done this, we should never have heard of him as the Father of Medicine. He did this systematically, and it is his chief title to immortality. The

accumulation of pertinent facts, however, is not the inductive method of Bacon, still less is it the inductive method as further expounded by recent philosophers. Hippocrates did nothing more as a distinct contribution to method. Yet, though he did not inculcate the next step in induction, the framing of hypotheses, he fully exemplified it. But the exemplification of a method does not indicate knowledge of it. A man may reason very well without knowing logic. So Hippocrates made the second step in induction, without knowing he was doing so; he framed hypotheses. He framed them very badly; or, he committed the commonest error, and perhaps an inevitable one, of scientific explorers, he framed hypotheses, the chief of which constitute his system, and regarded them as valid theories, while they were only too eager and erroneous anticipations. How much too eager and ambitious may be conceived, when we consider that his system has fallen, has been succeeded by many others, all of which have also fallen; and that the wise medical men of the present day, while they smile at such ruins, even those of our own Cullen, attempt to rear no portentous edifices, but satisfy themselves with humbler, more solid, and more contracted structures.

But facts and hypotheses are only steps in an induction, and we find no indication in Hippocrates that he knew how to test a hypothesis, by trying how it can be worked from deductively, or how to make it secure by various methods of what is called verification. We may almost venture to say that the true inductive method was scarcely desiderated in the days of Hippocrates. Medical knowledge was not ripe for it, as it is now. Enough that the great Father of Medicine set it on its right course for becoming a science; a position which we can say it has reached, though not even now in the grand comprehensive generalizations which he and many of his followers vainly thought they had achieved, but which the best moderns only recognise as objects to be aimed at.

Hippocrates, like other philosophers, seems to have known the untenable character and practically misleading quality of some hypotheses of his predecessors; but not of his own. Yet his great hypothesis or system was as weak as any other. He went as far in the true way of advancing medicine as, at his time, he could, when he insisted on observation. He did not foresee the use of numbers as Louis used them; and, had Bacon lived in his time, he could not have systematized the inductive philosophy; for science had made too little progress to furnish a sufficient field of observations on method, from which to draw the generalization implied in that which is called Baconian. But, after all, philosophic methods are more interesting, as themselves forming a department of science, than as teaching scientific men how to succeed in their pursuits.

We now pass to an entirely different matter, namely, the Hippocratic practice; an extremely interesting subject, but in all

respects less important for us than what may be called the Hippocratic philosophy. As in the philosophy we distinguished the method from the result; observation from its fruits; so in the practice we have to distinguish the principles from the details. Just as it is extensively and erroneously held that the specific observations of Hippocrates are more important for us than his plan or method; so it is extensively and erroneously held that the chief interest of his practice lies in the details, not in the underlying principles.

The details of his medical practice I shall say almost nothing about. For the poor suffering patient they are of supreme importance. Nothing else, indeed, is of importance at all. But who can give any rational account of them as practised by Hippocrates, or as practised now; except so far as they are easily proved by lay, as distinguished from instructed experience? That there is daily given out by professional men, as there was by Hippocrates, a mass of valuable advice, I have no doubt; but it is lamentably unscientific, and therefore here undescribable. Two points in the practice of this ancient are worthy of special notice and admiration. First, in accordance with his peculiar prognostics, which included the causation of disease, he attached great importance to diet and regimen, including residence and climate; and much advice, still considered valuable, is to be found in the records of this department of his practice. Second, his prescriptions were simple, compounded nearly exclusively from the plants of Greece. We have no trace of the ridiculous confections which were introduced in later times, and which Sydenham used, such as the Mithridate of the London Pharmacopœia, with its fifty ingredients. The superstitious belief in imaginary remedies, so prevalent in our day and in the time of Hippocrates, is not less useful nor less injurious than that of Sydenham; but it is greatly less absurd. In his history of medicine, Dunglison says that superstition is now restricted to the vulgar. There never was a greater mistake. Among the highest and most learned in our profession, and out of it, superstition, or belief in idle and unproved things, is as rife as ever it was. Regarding what remedy in common use can a physician give a reason, sufficient for all, for the faith that is in him? He knows many juvantia and lædentia in different cases, with some degree of assurance, but tangible remedies are the favourites of the physician and of the vulgar. They are for the most part now, as heretofore, mere matters of fashion. On the principle of doing his best, the physician may be bound to use them, but it is almost a humiliating proceeding at this time of day. "Ubi physicus desinit," says Stahl, "medicus incipit." There is no exercise of faith in medical science; but without it medical practice is hardly to be imagined. What a tissue of superstition is embodied in our dispensatories! We have not now, neither had Hippocrates, such a complication of solemn

nonsense as the "sovereign syrup for melancholy," the "theriaca Andromachi," or the "Mithridate," all of the London Pharmacopœia, and some of them in use within the memory of people still living; but we have in active use, if not in our Pharmacopœias, little else than such solemn nonsense in a less complicated form. What is the value of our beloved "bromide," at present used for all diseases? What the value of the rest? Alas! we can only say with Hippocrates, that we do what we can. The details of Hippocrates's practice are just as valuable or valueless as those of our own, and I may give one example. He lays it down as a rule that bleeding causes abortion, and must therefore be avoided in the treatment of pregnant women. Some centuries later, Celsus discovered that it was possible to bleed a pregnant woman without causing abortion. Then bleeding became a panacea for the diseases of pregnancy, and especially valued for the prevention of abortion. It was not a remedy of common potency, it was specific; and Robert Boyle, in his work on specific medicines, points out "how prejudicial it may be to many patients that physicians be prepossessed with a bad opinion of a useful remedy, may be guessed by him that shall consider what multitudes of teeming women that probably might have been saved by the skilful use of phlebotomy have been suffered to dye for want of it, upon a dislike of that remedy that physicians for many ages thought to be grounded upon no less authority than a positive aphorism of Hippocrates." Alas for Robert Boyle's opinion, the practice which he inculcated, and which has endured till the present day, is, so far as I know, rapidly becoming extinct; and all authorities would now agree that the evil foreboded by Hippocrates, and the benefit asserted by Boyle, are equally fallacies. The fact is that, in science, we can only say that we know nothing about it, that the assertions of Hippocrates, of Boyle, and of modern authorities are equally without proof, and that we only know with Celsus that a woman may be bled without causing abortion. Practitioners must meantime abide in their ignorance, and use this remedy with as much wisdom as they can bring to bear on the case for which its úse is suggested.

A main guidance in treatment Hippocrates found in his system. He might retard or he might hasten the coction of the humours in order to their crasis. He might watch the crisis, and act accordingly. On all this high-flying wisdom I shall say nothing, merely dismissing it with the remark, that most of us have some favourite system, avowed or not, on which we act, and which we foster to our inward delight, much as Hippocrates did.

The great principle on which Hippocrates conducted his practice, and for the divulging of which he must ever be had in respectful remembrance, is this: Nature or our natures cure diseases (not medicines); and this, Do good, and do no harm.

The latter teaching of Hippocrates is often quoted as a good

maxim in the somewhat altered form,—Be sure that, if you do no good, you do no harm; and it is certainly, for all and always, a good rule, that should never fall out of mind. But, unfortunately, it is one of that numerous class which it is easy to apply to others, not to ourselves; and he who fails to apply it to himself, is very likely to be the sanguine enthusiastic, even conscientious practitioner. Such an one, if not rendered extremely cautious by studying the history of his profession, is sure to argue of all he does that it is doing good, especially if it is old and orthodox practice he pursues. He, of course, wishes only to do good, and is doing good. So argued the profuse bleeders and salivators who have only now become extinct, much to the gain of mankind.

The grand misleading influence is crude theory or hypothesis; and it is both amusing and instructive to remark that the great Hippocrates well knew this, elaborately illustrated it, then shut his introspective eyes and leapt into the very gulf of error against which he warned others: and in like manner do we act nowadays, full though our conceited pates are of medical knowledge. Hippocrates demolished the treatment founded on the hot and cold, dry and moist, hypothesis, then framed his own system of the four humours, and diligently treated according to it, forcing diseases to adapt themselves to it; and his treatment had not the great advantage of the innocency of homœopathic cures by infinitesimal doses, founded on the grossly absurd homœopathic hypothesis; for he believed in his theory, and his patients had to suffer severely for it, like the Greeks for the folly of their kings. One of his notions was to evacuate the humour, and he used the hellebore and other violent and certainly not harmless medicines to effect his purpose.

The maxim to do no harm is one for all time, to be inculcated and re-inculcated, for it is always getting forgotten and lost faster than it is instilled. Had it been duly attended to, medicine would have stood immeasurably higher in the public confidence than it does stand; and quackery and charlatanry would scarcely be able to find footing, instead of flourishing as they do, a standing and not undeserved reproach to the ranks of the regular profession. Had this golden rule of practice been followed; had it been kept in mind not only that judgment is difficult, but that experiment is dangerous, as Hippocrates taught,—then Celsus could not have said that the best medicine is to take none; nor Hoffman advised the patient to flee doctors and drugs if he wished to be safe; nor Radcliffe have said that when young he had fifty remedies for every disease—when old, one remedy for fifty diseases; nor James Gregory have said that young men kill their patients, old men let them die; nor William Hunter have said that to medical theories perhaps more of the human species have fallen a sacrifice than to the sword itself or pestilence; nor Sir Benjamin Brodie have said of John Hunter, that, by teaching us when not to interfere, he had done more for the healing art than all the inventors of remedies who

had gone before him; nor James Johnston have declared his conviction that, if there was not a single physician, surgeon, apothecary, druggist, nor drug on the face of the earth, there would be less sickness and less mortality than now. These expressions are all, in my opinion, either imperfect or wide of the truth, but they show how lamentably the teaching of the Father of Medicine has been and is neglected.

The chief principle of Hippocrates in regard to the cure of disease cannot be said to be a principle of treatment, yet it is above all treatment, and it is under it that, according to him, treatment should be conducted. The enunciation of this great principle is one of the chief glories of Hippocrates, and will always redound immensely to his credit. Our natures, says he, cure our diseases; or, nature cures disease; or, there is a *vis medicatrix naturæ.* He did not hold, as Sydenham represents, that nature by herself determines disease, and is of herself sufficient in all things, against all of them; for then his system, or method as Sydenham calls it, and his diligent treatment according to it, would have been vain. But he held that it was not the physician nor his drugs that cure disease; and here was his great strength and merit. But, like all his successors, or at least like most, when the Father of Medicine descends to the subject of his practice, he totters; and this great and, in many respects, glorious enunciation of Hippocrates demands some criticism.

We know too little of the times of Hippocrates to judge of his actual practice. Its results are too much hidden from us. Yet we may safely believe he was a great practitioner, for he knew what he was about probably better than any one else, and he was certainly a profound thinker, and full of all the knowledge of his time. The fact, that his practice has been much admired and followed till comparatively recent times, is favourable evidence, but of very little force with him who has paid even a very slight attention to the history of the profession. The vitality of error and even of mischievous error is quite marvellous. The Hippocratic method or system and all other systems are now fortunately withered, if not dead, unless we recognise their revival in the weedy growth of homœopathy. The profession is loosed from such useless and injurious trammels, and looks anxiously for some philosopher of the true inductive character who may on a solid basis establish some humble and probably only partial method. Meantime we must be patient, and take care to avoid the hasty adoption of any new generalization for the guidance of practice. Till we make advance in scientific manner we must do the very best we can: acquire knowledge, practise the numerical method, gain experience. Then, although we may be fairly taunted with our endless variations, each physician's practice deserving a title compounded of his name with *ism* affixed to it, we may rest in the meantime in satisfactory consciousness that we have striven to increase our know-

ledge to the utmost, and have used it mixed with all available wisdom for behoof of our patients.

About the time of the revival of learning in England appeared the famous Sydenham. He has been called the Father of English medicine, and I cannot deny him a right to the title, for I know not what in the world English medicine is. There is only one kind of medicine, and of it Hippocrates was the father, and the anatomists and Harvey the revivers and much more. Sydenham was a worthy sagacious bold man, a distant imitator of Hippocrates, whose method of observation he has the great merit of restoring. But he displaced the ambitious and well-designed but premature medical systems founded on physics or on chemistry, and restored the old Hippocratic system or theory of disease and of treatment. He was a retrograde philosopher. As Hippocrates is justly supposed to have been a great and useful practitioner, so is Sydenham. He is called the chief of English practical physicians. But, for the true philosopher or for the scientific physician, this enviable distinction is as valuable an indication of real usefulness as a knighthood or a baronetcy; no more. It is a matter of faith or of reputation, probably having some good foundation, possibly only some bad one. As we cannot tell even now who are good practitioners *a posteriori*, how can we judge of Sydenham or of Hippocrates? Yet we can confidently assert that, as they made the greatest progress in their day towards scientific eminence, they were, probably, on that account, the safest guides in practice.

When Broussais vaingloriously says that the real physician is the one that cures, and that the observation which does not teach the art of healing is not that of a physician, but is that of a naturalist, he is at issue with the teaching of Hippocrates and of good sense. Hippocrates and the real physician do not cure; they pretend only, and in a very humble way, to treat disease; they know that observation and experiment have not yet taught us the art of healing, and they further know that the only kind of observation or the only valuable kind is that of the naturalist. It is the quack—honest quack it may be—who founds his system, and builds on it his cures; as Laennec gently hinted that Broussais did. Every one knows that the doctor can cure some diseases. He can overcome constipation. He can smother the itch insect. But these are not cures in the sense of the present discussion, and of them perhaps Hippocrates had as many as we now have. The great diseases of mankind—the inflammations, the fevers, the degenerations—Hippocrates did not pretend to cure; he treated them according to his system. In the great sense there are no cures, except those miracles which are appropriately so designated.

Hippocrates says that nature cures disease; and, in his chapter on art, and elsewhere, limits the sphere of medical treatment to diminishing the sufferings of patients, and lessening the violence of diseases when this is possible, by the resources of art. He makes no pretensions to curing diseases.

The declaration of Hippocrates that nature cures disease, cannot, however, be passed over without pointing out two great errors in it. One lurks in the word nature, the other in the word disease.

A modern philosopher might, without offence against truth, say that nature cures disease, but he would use the words in a quite different meaning. He would imply, by the word nature, merely that collocation and arrangement of forces and materials which produced the desired result; he would use the single word merely for the sake of brevity. But most moderns use the word erroneously, as Hippocrates did, to imply some new power or force evoked by disease, a *vis medicatrix*, which opportunely comes on the field to combat with, and perchance overcome, the enemy. Now, this is an utterly unjustifiable assumption, an error against true philosophy, for there is not the slightest knowledge of such a force as the *vis medicatrix*, nor the slightest reason to expect its discovery; quite the contrary. In the Hippocratic system there are many such errors, and they are, comparatively speaking, easily excusable there. When he solemnly describes the black bile as a cause of many and various diseases, he is inditing nonsense, which nobody now believes; although our best physicians habitually and carelessly speak equal nonsense when they shake their heads and mutter "liver," or "bile," to their patients. But, for the black bile (and the liver) hypothesis, there is this to be said, that there are such things as black bile and liver, whereas we know absolutely nothing of this beneficent nature, or *vis medicatrix*. Diseases are cured, we know not by what forces. When Hippocrates raised up nature to take the place of the priests and their drugs, or of the physicians and their boasted art, he did a great work for medicine and mankind; but the work was imperfect. We now dethrone nature, and leave the seat of honour to be filled up gradually by the knowledge to be expected from the labours of physiologists and pathologists.

The error involved in the word disease nearly resembles the former; for Hippocrates believed that by it some entirely new matter or force, or combination of them, was introduced into the healthy system, to disorder or to destroy it. There may be, in a peculiar sense (as in zymotic diseases), some truth in this widely and long established doctrine; but there is no doubt that it is contrary to the whole tenor of modern knowledge of morbid processes. We do not now hold that an epileptic is possessed with devils, which have to be expelled; nor do we hold the similar view in regard to most other diseases. Hippocrates had no notion of the subjacent unity of the laws of health and of disease; and it is, indeed, only now a recognised pursuit to show the continuity of health and disease on the one hand, and of disease and health on the other. This pursuit may indeed be said to be one of the highest aims of modern true medical phil-

osophy, and we must not expect too much even from the Father of Medicine.

We may, however, observe, to his great credit, that he did not exhibit any tendency to the belief in specific medicines, which is a natural consequence of the error just described. Hippocrates treated disease; he did not pretend to cure it, as do the believers in specifics. Hippocrates treated disease according to his system; he did not believe in an additional method of treatment by specifics, however much he might resort to empirical practice. Nowadays, when systems of medicine are all in decay, treatment by the best physicians is almost exclusively a more or less rational empiricism; but not entirely, for the belief in specifics is still extensively prevalent, and the venerable Alison has inculcated the duty of searching for them as one of the great objects of modern medicine.

Specific medicines were greatly believed in in the time of Sydenham, who imitated to some extent a botanical classification in his arrangement of diseases, and supported the doctrine of a special medicine against each species of disease. About his time, Jesuits' bark was introduced into general practice, and it soon became the model specific, a grand position which it still retains. Indeed, if we look over the innumerable panegyrics of therapeutical medicine by medical men, we have the cuckoo cry of quinine, with an occasional addition, varied according to the credulity of the writer. Quinine, however, still survives as not merely a medicine of great value in ague and other diseased conditions, but as the great specific.

A specific is a medicine of the mode of whose action we are entirely ignorant; it works by an occult quality. Each specific encounters its own disease; it enters the body, and, searching, finds out the spirit of the malady, and, when it finds it, it there and then smites it, as an ox is smitten in the shambles. "Any one who objects," says Sydenham, "to me that a sufficiency of specific remedies is already known to the world, will, upon a due consideration of the subject, take the same view with myself. I am sure of this, since the only medicine that supports his doctrine is the Peruvian bark. Medicines that specifically answer to the indications of treatment, and medicines that specifically cure diseases, are as wide as the poles asunder. In the first case, we satisfy the curative indications, and drive away the ailment; in the second, we take no cognisance of the indication or intention at all, whilst we destroy the disease directly and immediately. For instance, mercury and sarsaparilla are commonly called specifics in syphilis. Nevertheless, they are no proper and direct specifics at all; nor will they be considered as such, until it be shown by cogent and irrefragable proofs that the one produces its beneficial effects without salivation, and the other without diaphoresis. In this way, many different diseases are cured by their different

appropriate evacuations; but it is the evacuation that performs the cure, the medicine being specific to the evacuation. To the disease itself, self-sufficiently and directly, they are no more specific than a lancet is specific to a pleurisy.

"Specific medicines, in the restricted sense of the word, are by no means of everyday occurrence. They do not fall to every man's lot. Nevertheless, I have no doubt but that out of that abundant plenitude of provision for the preservation of all things wherewith nature bourgeons and overflows (and that under the command of the great and most excellent Creator), provision also has been made for the cure of the more serious diseases which afflict humanity, and that near at hand, and in every country. It is to be lamented, indeed, that the nature of plants is not more thoroughly understood by us. In my mind, they bear off the palm from all the rest of the materia medica. They offer also the most reasonable hopes for the discovery of remedies of the sort in question. The parts of animals are too like those of the human body; minerals are too unlike. That minerals, however, are more energetic in satisfying indications than either of the two other classes of remedies, and that the difference in character is the reason for their doing so, I freely confess. Still, they are not specific remedies in the sense and manner explained above."

The restriction in the definition of specifics here carefully stated by Sydenham is one which we may neglect, for it is based on his firm but vain belief in his method, which no one now entertains. Mercury, and even sarsaparilla, have as much right to be included among specifics as quinine, for we are utterly ignorant of their mode of action. We do not believe, as Sydenham did, that they, by producing evacuations, eliminate the poison. Robert Boyle's use of the term is according to a better definition. He does not hold that these medicines cure diseases "directly and immediately," but that they have "the virtue to cure, by some hidden property, this or that particular disease, as a pleurisy, an asthma, the colick, the dropsy, etc." A specific is "such a medicine as very often, if not commonly, does very considerably, and better than ordinary medicines, relieve the patient, whether by quite curing, or much lessening, his disease, and which acts *principally* upon the account of some property or peculiar virtue; so that if it have any manifest quality that is friendly, yet the good it does is greater than can reasonably be ascribed to the degree it has of that manifest quality, as hot, cold, bitter, sudorifick, etc."

This passage, given above, from Sydenham is purely Hippocratic, except the utterly groundless, and therefore meantime unscientific, doctrine of specifics. Robert Boyle, a friend of Sydenham's, to whose book I have referred, laboured to show that the doctrine of specific remedies is reconcilable to the corpuscular philosophy; but this goes no further in relieving it of untenability than the only theoretical argument of Sydenham in its favour,

namely, that the existence of such remedies for the graver diseases is rendered probable by a consideration of the goodness of God. Similar arguments would justify a belief in witchcraft; and, when we read of the specifics of bygone ages, or even of recent but past times, we would all nowadays regard them as quite as absurd as the feats of witchcraft or of charms; and the many specifics, even of our own day, have only the same claim on our belief as witchcraft has, faith. Robert Boyle's specifics and Sydenham's excite our laughter and derision. Our own specifics do not, only because they are our own. Boyle and Sydenham would appeal to experience, just as we do now. Facts, they would exclaim; but the wise man will say, as Laennec did to Broussais, that he cannot recognise the facts. Cullen has, in banter, expressed this by saying that in medicine there are as many false facts as false theories. There are many wonderful survivals of error quite as striking as the belief in specifics or in quinine. It is a disgrace to practical medicine that, in the days of the useful but limping numerical method, we have no unanswerable evidence of the value of quinine. We have abundant evidence of its frequent apparent utility, of its frequent failure, of its being in no sense a Sydenhamian specific; and Pereira denies to it the right to any such pretension. It may be safely asserted that it is not nearly so well entitled to be ranked as a specific as the humble poultice, or lying-a-bed, is, in many inflammatory diseases. Considering the failure of physicians in their searches for specifics, and considering our present limited knowledge of pathology, we cannot too much deprecate the recommendation of many great men to continue the pursuit. Few things have retarded medicine more than this doctrine and the discovery of Jesuits' bark; were the only evil produced the diversion of ingenuous youth from work that is abundantly supplied, and cannot fail to produce good results. The search for specifics is, from its conditions, likely to be not more successful than a boy's attempt to shoot crows with his eyes bandaged. Hippocrates is the father of no such therapeutical extravagance. The best moderns do not treat diseases according to his method or system, or according to any method whatever; but they join with Hippocrates in doing their best, with all humility as empirics utterly, or as rational empirics, if any reason can be found.

It may be truly affirmed that actual practice is not necessarily modified by the doctrine of specifics, that a disease may be treated honestly in the same way by a practitioner who believes in specifics, and by one who denies that there is any ground for such belief; but this admission does not justify a groundless hypothesis. While no practical advantage is claimed as arising from this hypothesis, it is very certain that, as already pointed out, and in other ways, much practical evil must arise from holding it. Erroneous and groundless doctrines have an inalienable tendency to mislead, and this is at least as well exemplified in practical medicine as in any

other branch of human activity. The believer in specifics has a constant and strong bias to evade the application to himself of the rule to do no harm.

If one dared to step forward to defend the doctrine of specifics, he would assuredly take as the ground of his argument the present theories of the etiology of some zymotic diseases, implying thus a limitation of the applicability of such remedies that has, so far as I know, not been hitherto stated. But, even were a sweet reasonableness admitted in this argument, it would not justify, far less call for, the search for specifics; for assuredly the logical and only proper proceeding in such a case is to find out the specific essence of the disease, and its mode of operation, before trying to find out its cure. One does not set about conquering an enemy without first ascertaining who and where he is, and how he works. One cannot attempt the solution of a problem which has not even been stated. Besides, our really justifiable anticipations of benefit from specifics in the zymotic diseases are restricted to the prevention of the attack, and scarcely reach the process of cure.

In order to do justice to Hippocrates, reference should be made at length to other matters, and especially to his great and highly esteemed contributions to medical ethics. But the subject is remote from those which have occupied this discourse, and cannot be now dwelt upon.

Hippocrates established on a sure basis medical observation and research. He made extensive contributions to the natural history of disease. He separated medicine from priestcraft and much pseudo-philosophy. He improved the principles of medical practice. He commenced medical literature. He established medical ethics.

Had Hippocrates not been truly great, the envious tooth of corroding time would have long ere this laid him low. He still stands proudly; admired of a whole profession; recognised as having done more for it than any other man. Let us join with his most enthusiastic disciples, and hail him as divine; and if any one presumes to cavil at this grand epithet, let him be told that Hippocrates, as a great practical physician, had warm human sympathies. Has he not himself said, that where there is medical art, there also there is love for men?

Article II.—*Statistics of Amputation of the Thigh in Bengal.* By K. M. Downie, M.D. Ed. Compiled from Returns in the Surgeon-General's Office, Bengal Medical Department.

The returns on which the following observations are founded embrace a period from 1858 to 1871; a few cases, chiefly in the Calcutta Native Hospital, going back as far as 1849.

The total number of cases recorded is 287; but from lapse of

time, or imperfection of records, 10 do not afford information on *all* the points required for tabulating results. This will explain discrepancies in the number of cases included in different subjoined statements. Five cases of multiple injury are excluded:[1] the shock is greater, and a double amputation often required; we cannot assign to such cases danger due to thigh amputation *per se*.

I. Hip-joint. Amputation at the hip-joint was performed in 14 cases; all the subjects were males.

1. Primary, for injury, 2 cases; recovered 1, died 1.

One, a Brahman,[2] aged 16, recovered after 227 days; the operation was undertaken for compound fracture of femur. The other, a Hindu, aged 35, died from shock on the third day; the amputation was in consequence of a shark bite.

2. Secondary, for injury, 3 cases; recovered 1, died 2.

One Hindu, aged 25, compound fracture of the femur, followed by osteo-myelitis; recovered after 90 days.

A Hindu child, aged 7, mortification following compound fracture; died from shock within 24 hours.

The third, a Thákur, aged 34, osteo-myelitis following incised wound of the knee-joint; died in two and a half hours from exhaustion.

3. For disease. Six cases; recovered 3, died 3.

Two recoveries were in Hindus—aged 16, osseous tumour, and aged 10, arthritis—after 88 and 98 days respectively; the third, a Chumár,[3] aged 20, osteo-sarcomatous tumour, measuring 42 inches round, after 63 days.

The three unsuccessful cases were all performed for cancerous disease. One, a Parsee, aged 40, died of shock on the third day; the second, a Musalmán, aged 19, died of exhaustion on the fifth day; the third, a Hindu, aged 25, lived 100 days; death was caused by cancerous infiltration and pyæmia.

4. Consecutive to other amputations. In three cases amputation at the hip-joint was necessary, as a remedial measure consecutive to another amputation; recovered 1, died 2.

These cases and their terminations are tabulated under the first operation, and there only.

The recovery was in a Musalmán, aged 16, where osteo-myelitis supervened on secondary amputation of the lower third for a lacerated wound of the knee-joint, 121 days.

One fatal case was a Musalmán, aged 36, where osteo-myelitis

[1] Multiple injuries, five cases:—Ránígánj, railway accident—primary amputation, circular, middle third thigh, and of forearm; died of shock in four hours. Fatihpúr, railway accident—left leg and right foot, primary, flap, lower third; died, five days, exhaustion. Allahabád, railway accident—primary, lower third, flap, with compound fracture of left arm followed by sloughing; died, seven days. Mírath, railway accident—primary, upper third right, middle third left, flap; died, one day, exhaustion. Mainpúrí—primary, upper third, flap, for compound fracture of femur, complicated with fracture of both arms; died, five days, diarrhœa and exhaustion.

[2] At Mainpúrí Dispensary. [3] At Mainpúrí Dispensary.

followed a lower third amputation for disease; fatal 22 days after original operation.

The other death occurred in a Hindu, aged 21. Secondary hæmorrhage following amputation at the lower third for disease of the knee-joint necessitated the operation. The patient died after 130 days from pulmonary embolism.

II. Thigh. The amputations—very few in number—performed on Europeans or Eurasians, or on military service, have been excluded,[1] so as to give a well-defined class of cases, amputation of the thigh in the Bengal Presidency performed on natives of India in civil life. Mr J. R. Lane's statistics (in Mr Samuel Cooper's Surgical Dictionary, article Amputation) show the mortality in civil life; unfortunately his do not show the influence of site of amputation on mortality. [Hip-joint amputation, except in four cases (consecutive), are not included in any of the Tables.]

I.—*Mortality in Bengal as compared with Europe.*

Nature of Operation.	Mr Lane's Tables.			Bengal Presidency.		
	No. of Cases.	Fatal.	Mortality per cent.	No. of Cases.	Fatal.	Mortality per cent.
For Injury, Primary	164	111	67·68	72	45	62·5
„ Secondary	97	51	52·57	84	48	57·1
For Disease.....	705	192	27·23	102	48	47·0
Total.....	966	354	36·6	258	141	54·6

Mr Erichsen, in the sixth edition of his work on the "Science and Art of Surgery," gives the following figures:—Cases from various sources 3477, deaths 1224, percentage 35·2.

University College Hospital.			
Amputation for	Cases.	Deaths.	Percentage.
Injury.....	39	23	59·0
Disease.....	86	18	20·9
Malgaigne. Parisian Hospitals.			
Injury.....	39	34	74
Disease.....	153	92	60

[1] Ten Europeans, 9 males; 1 Eurasian, male; 1 Native, male:—

Primary, injury (gunshot), flap, upper third.....1	Died in 2 hours, shock.
„ „ „ flap, middle third.....3	Died, 24 hours, shock. Died, 1, exhaustion. Recovered, 1, 243 days.
„ „ „ flap, lower third.....2	Recovered, 1, 2 days. Died, 1, 2 days, exhaustion.
Secondary to injury, middle third.....2	Flap, died, 13 days, pyæmia. Circular, recovered, 57 days.
Disease, circular, upper third.....1	Died, 31 days, osteo-myelitis.
„ (female), flap, lower third.....1	Recovered, 30 days.
Eurasian, disease, lower third..... 1	Circular, died, 32 days, exhaustion.
N. Sepoy, 18th N.I., secondary (middle third, gunshot) 1	Flap, died, 3 days, of hæmorrhage.

Amputation for	Cases.	Deaths.	Percentage.
Various Sources.			
Injury	964	576	59·7
Disease	1465	477	32·5
University College Hospital.			
Primary Amputation.....	14	8	57·2
Secondary ditto.....	21	14	66·7
Various Sources.			
Primary Amputation.....	235	153	65·1
Secondary ditto.....	156	85	54·4

The mortality is markedly greater in the three large hospitals, Calcutta Medical College, Calcutta Native Hospital, and the Mitford Hospital, Dacca; and from the analysis given below, this increase is seen to be mainly due to pyæmia and its congener osteo-myelitis.

The following table contrasts the statistics of large hospitals and dispensaries or small hospitals.

II.—*Mortality from Thigh Amputations in Bengal.*

Nature of Amputation.	Large Hospitals.			Small Hospitals or Dispensaries.		
	No. of Cases.	Fatal.	Mortality per cent.	No. of Cases.	Fatal.	Mortality per cent.
For Injury, Primary	26	21	80·7	46	24	52·1
,, Secondary	25	21	84·0	59	27	45·7
For Disease.....	34	26	76·4	68	22	32·3
Total...	85	68	80·0	173	73	42·1

The next two tables (III. and IV.) show the influence of seat of operation on the death-rate of thigh amputations, in 85 cases.

III.—*Mortality as affected by Seat of Operation—large Hospitals.*

Amputation through the	For Injury.						For Disease.		
	Primary.			Secondary.					
	No. of Cases.	Fatal.	Mortality per cent.	No. of Cases.	Fatal.	Mortality per cent.	No. of Cases.	Fatal.	Mortality per cent.
Upper Third.....	10	9	90	6	5	83·3	6	5	83·3
Middle Third.....	9	6	60	8	6	75·0	11	7	63·6
Lower Third.....	7	6	85·7	11	10	90·9	17	14	82·3
Total...	26	21	77·7	25	21	84·0	34	26	76·4

It is unusual to find the mortality greater for the lower than the midle third alike for injury and disease.

IV.—*Mortality as affected by Seat of Operation—small Hospitals or Dispensaries*, 164 *Cases.*

Amputation through the	For Injury.						For Disease.		
	Primary.			Secondary.					
	No. of Cases.	Fatal.	Mortality per cent.	No. of Cases.	Fatal.	Mortality per cent.	No. of Cases.	Fatal.	Mortality per cent.
Upper Third.....	10	6	60·0	8	5	62·5	8	1	12·5
Middle Third.....	12	8	66·6	17	9	52·8	29	11	37·9
Lower Third.....	17	7	41·1	33	12	36·3	30	10	33·3
Total...	39	21	53·8	58	26	44·8	67	22	32·8

The following statements from Erichsen's work are quoted for the sake of comparison :—

Statistics of Amputation in the Army of the Crimea.			
Seat.	Cases.	Deaths.	Per cent.
Upper Third	44	38	86
Middle Third	68	41	60
Lower Third	66	37	56
Total.....	178	116	65·2
French Army of the Crimea.			
Upper Third	81	37	60
Middle Third	91	63	69
Lower Third	101	59	58·4
Total.....	273	159	58·2
Italian Campaign of 1859.			
Upper Third	46	43	93
Middle Third	52	44	84
Lower Third	43	36	83
Total.....	141	123	86·7

These statistics confirm the generally accepted conclusion that the danger of amputation diminishes as the distance from the trunk increases.

In the following table, No. V., the returns have been subjected to a more elaborate analysis. Only 25 of the 249 cases contained in this table are females, and the mortality among them is 36 per cent. against a general ratio of 54·6 :—

V.—*General Analysis of Amputations of the Thigh in the Bengal Presidency.*

For Injury. — Primary.

Upper Third.								Middle Third.								Lower Third.							
Flap.				Circular.				Flap.				Circular.				Flap.				Circular.			
Recovered.		Died.		Recovered.		Died.		Recovered.		Died.		Recovered.		Died.		Recovered.		Died.		Recovered.		Died.	
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
...	...	2	...	1	...	5	2	...	...	3	1	3	...	2	...	...	...	4	...	1	...	2	...
4	...	4	...	...	...	2	...	4	...	6	1	...	...	1	...	5	1	1	2	4	...	4	...

For Injury. — Secondary.

Upper Third.								Middle Third.								Lower Third.							
Flap.				Circular.				Flap.				Circular.				Flap.				Circular.			
Recovered.		Died.		Recovered.		Died.		Recovered.		Died.		Recovered.		Died.		Recovered.		Died.		Recovered.		Died.	
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
...	...	1	...	1	...	4	...	1	...	5	1	1	...	...	...	...	...	5	1	1	...	4	...
2	1	4	...	...	...	...	1	5	1	6	2	2	...	1	...	17	2	8	1	2	...	3	...

For Disease.

Upper Third.								Middle Third.								Lower Third.							
Flap.				Circular.				Flap.				Circular.				Flap.				Circular.			
Recovered.		Died.		Recovered.		Died.		Recovered.		Died.		Recovered.		Died.		Recovered.		Died.		Recovered.		Died.	
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
...	1	4	...	...	...	1	...	2	1	5	...	1	...	2	...	3	...	5	1	...	...	5	3*
5	...	1	...	2	...	...	...	13	2	10	...	3	...	1	...	17	...	8	...	3	...	2	†

Note.—The number of cases here recorded is less than given in Tables II. and IV., because information on all points was not available for every case returned.

* 85. Total, large hospitals.

† 184. Total, small hospitals or dispensaries.

Out of 258 amputations, 102 were for disease, of which 13 are registered as cancerous, all in males.

Taking the mortality for non-malignant disease as 1, the ratio of death after amputation for malignant disease will be 1·47.

Upper Third . . .	0·5 to 1.
Middle Third . . .	1·6 to 1.
Lower Third . . .	0·98 to 1.

The two tables which follow show the causes of death in fatal cases. The chief point brought out is that, while the deaths from pyæmia and osteo-myelitis conjointly in the three large hospitals is 44 per cent. of the total mortality; in the smaller hospitals or dispensaries, only 4 per cent. of the deaths are assigned to this cause; and, further, that these causes are more fatal among the operations for disease and secondary for injury, taken together, than to the primary for injury, in the ratio of about 5 to 3 (exactly 51 to 28); while disease cases suffer in the ratio of rather more than 3 to 2 to secondary, and rather more than double primary cases for injury.

VI.—*Causes assigned for Death in sixty-eight fatal cases of Thigh Amputation in large Hospitals.*

	For Injury.		For Disease.	Total No. of Deaths.	Ratio per cent. to total No. of Deaths.
	Primary.	Secondary.			
Pyæmia	5	8	9	22	32·35
Osteo-myelitis	1	...	7	8	11·76
Exhaustion	2	3	5	10	14·70
Shock	4	1	1	6	8·82
Gangrene	3	5	...	8	11·76
Tetanus	1	3	...	4	5·89
Secondary Hæmorrhage	1	...	...	1	1·47
Traumatic Delirium	1	...	...	1	1·47
Typhoid Symptoms	1	...	...	1	1·47
Pneumonia	...	...	1	1	1·47
Pulmonary Embolism	...	...	1	1	1·47
Cardiac Embolism	...	1	...	1	1·47
Cholera	1	...	...	1	1·47
Opium Poisoning, Accidental	...	...	1	1	1·47
Not known	1	...	1	2*	2·94
Total	21	21	26	68	100

* Patients taken away by friends.

VII.—*Causes of Death assigned in seventy-seven fatal cases in smaller Hospitals and Dispensaries—seventy-three from Tables II. and V., and four incomplete cases.*

	For Injury.		For Disease.	Total No. of Deaths.	Ratio per cent. of total No. of Deaths.
	Primary.	Secondary.			
Exhaustion	7	6	14	27	35·0
Shock	8	9	1	18	23·4
Tetanus	2	6	2	10	13·0
Diarrhœa	1	2	1	4	5·1
Pyæmia	1	2	...	3	4·0
Mortification	1	1	1	3	4·0
Debility	2	..	...	2	2·6
Pulmonary Tubercle	...	...	1	1	1·3
Asthma	...	1	...	1	1 3
Hæmorrhage, Reactionary	1	...	...	1	1·3
Hæmorrhage, Secondary	...	1	...	1	1·3
Scurvy	...	...	1	1	1·3
Embolism	...	1	...	1	1·3
Not stated	3	...	1	4	5·1
Total	26	29	22	77	100·0

VIII.—*Average number of days (after Amputation) till Recovery or Death of* 122 *cases, in which the circumstance was recorded.*

Nature of Amputation.	Recoveries.		Deaths.	
	No. of Cases.	Days.	No. of Cases.	Days.
For Injury { Primary	23	65	27	16·5
For Injury { Secondary	34	59	49	11·5
„ Disease	61	50	46	20·0

Of the fatal cases, death occurred within twenty-four hours after the operation in

51 per cent. of primary cases . . $\frac{1}{2}$
22 „ „ of secondary „ . . $\frac{1}{5}$
10·8 „ „ of disease „ . . $\frac{1}{9}$

Out of the whole 145 fatal cases of thigh amputation, with cause of death recorded, tetanus is returned in only 14, or 9·6 per cent. of total mortality.

Primary deaths, 3; average No. of days, 10·6; 6·3 per cent. total deaths.
Secondary „ 9; „ „ „ „ 8·6; 18·0 „ „ „
Disease „ 2; „ „ „ „ 2·5; 4·1 „ „ „

Remarks.—Tetanus would seem very much more frequently to follow amputations for injury, especially when secondary, than for disease.

The above analysis of cases may serve as a basis for the addition of cases subsequent to 1871.

When it is considered that, from repugnance of natives to an

operation, interference is often unduly delayed; that many of the cases occur in the extremely poor and ill-fed; that there is often difficulty in the nourishment of patients; and that seldom or never are the comforts and careful trained nursing of a European hospital available: there is reason for satisfaction with past results, and good hope of increased success in the future.

There are some circumstances, however, which must be borne in mind in reading these statistics:—

1*st.* The hospitals designated as "large" are most of them situated in towns. Out of 113 cases falling under this head, 71 occurred in the Medical College Hospital and Chandney Hospital, Calcutta, and 24 in the Mitford Hospital, Dacca, or about 90 per cent. of the whole in the large cities of Calcutta and Dacca. The subjects coming under operation in these hospitals are much more unfavourable for successful results than in the provincial dispensaries.

These hospitals are, moreover, subject to all the influences which arise from dense and dirty native towns.

2*d.* The cases above tabulated embrace all varieties of race, from the puny and malaria-poisoned Bengáli to the stalwart Pathán of the Panjáb frontier.

3*d.* The causes of death are doubtless more carefully investigated in "large hospitals" than in small Mufassil dispensaries, and the term "exhaustion" must be accepted with hesitation as a true exponent of the disease or condition which led to a fatal issue.

[The above is extracted from General Report No. 4 on Dispensaries, Vaccinations, etc., in the Bengal Presidency for the year 1871, compiled for the Surgeon-General, Bengal Medical Service.]

Article III.—*Clinical Notes on some Fevers at Naples.* By J. A. Menzies, M.D. Ed., F.R.S. Ed.

Typhoid perhaps naturally occupies the first place. Not that it is peculiar to Naples, nor as a rule of a severe kind, but because, erroneously, Naples is supposed to be a city which is always full of it, and where visitors cannot stay without catching it.

I have attended a good many cases in my six years' residence here, and have only seen three fatal cases. One of these cases of death was certainly due to the neglect of the nurse in attending to my directions. In another case, subsultus tendinum was observed on the second or third day, and continued at intervals until the fifteenth, when petechiæ and vibices appeared, and in a few hours death ensued.

Rose spots in some cases were absent. In one case there was a history rather pointing to malarious fever than to typhoid, specially as the spots were not seen. The patient was, although

previously perfectly well, struck down in a moment, and had to be assisted to his hotel.

I have never seen a case here where there was hæmorrhage from the bowels or perforation of the intestine. I always make a point of explaining the nature of the disease to the patient or his friends, and enjoining abstinence from everything solid, and even semi-solid, until the cessation of the fever; and then I only allow minced meat for the first fortnight of convalescence. But in this, I am guided to some extent by the degree of emaciation of the patient. One who has lost much flesh requires greater care in this respect than another who is less emaciated.

I have adopted the treatment of my friend, Professor Cantani, who makes use of the kidneys to remove peccant matters, and with great success, as his clinique shows—thirty-five cases consecutively were *all* cured. He makes the patient drink large quantities of cold water, and sets up a thorough diuresis. It is perfectly astonishing to note the result of this method. Diarrhœa and tympanitis, in the course of a day or two, are wonderfully reduced. The temperature keeps pretty low; the patient lies comfortably in any position; the mouth and tongue are moist; and in some cases, were it not for the thermometer and spots, it would be difficult to assert that the patient was suffering from fever. In one case, a young lady gave me much annoyance by persisting in wishing to get up. She even required the use of an enema every other day, to bring away formed motions· But one day, while sucking an orange, she was startled, and swallowed some of the pulp. This brought on a violent attack of diarrhœa, which lasted until the pulp was expelled, and then ceased. It had also the good effect of rendering her more tractable. Free sponging with cold or tepid water, and plenty of fresh air, with frequent changes of linen, are of the greatest service to patients. I was sent for in consultation to see a lady in the country on one occasion. I found her on the eleventh day with a bed-sore, and almost moribund. She was travelling with a chaperone who had appropriated a very large and lofty room, leaving her good-natured employer in a very small and ill-ventilated one. I desired her to be removed at once into the larger room, which was done immediately, and with a little stimulant cautiously administered she began to revive. I left her, after giving an unfavourable prognosis. Some weeks afterwards I was much surprised, when seeing another patient in the country, to meet this lady completely recovered. I have seen a few cases of typhoid here complicated with meningitis, but they are not common. Remittent fever is apt to follow on the defervescence of the typhoid; but this is by no means necessary. It retards recovery very much, although it may not be severe of itself. Some people seem to have a peculiar predisposition to this disease. I attended a newly-married lady who contracted the fever somewhere out of Naples,

and, feeling out of sorts, came into town for advice. It was her third attack, and proved to be a mild one. In the first attack, she nearly died of pneumonia, and in the second of the fever. In both, her mouth was a source of severe suffering. Having had experience enough of fevers, she preferred the cold-water treatment to any other. Her sister, also a bride, and the two husbands, who were of the party, all escaped. An unmarried lady, æt. fifty, and her niece occupied the same room in an hotel here. The aunt got fever, while the niece of eighteen escaped. Both of them were healthy, and accustomed to take a good deal of out-of-door exercise. The aunt did not recollect ever having had a day's illness. She had a slight relapse from over-indulgence in mashed potatoes, but made a good recovery. Her temperature was never very high, and she took no stimulant of any kind, and nothing but beef-tea and milk during her illness. In some cases where there is much irritability of the stomach, bismuth is of service, and also, as an astringent, gallic acid. I had a curious accident, however, not long ago, which has made me very cautious in giving these two powders together in typhoid cases. I had prescribed them for a gentleman who was, in addition to his typhoid, a good deal debilitated by excess in the matter of stimulants. One day, he produced a blackened shell or crust which he had passed at stool, and asked what it was. The next two days, other portions came away, and it was evident that the powders had formed a hard crust round part of the intestines. The edges were rough and pretty sharp, and had the crust been formed above, instead of below the point of ulceration, there can be no doubt that they might have perforated the bowel. This case was complicated with phlebitis, periostitis, and congestion of both lungs, and followed by remittent fever of a very persistent kind, though not severe, and was altogether one of the most troublesome I ever had to deal with. I have observed that travelling during the period of incubation has the effect of aggravating the disease.

Malarious Fevers.—Attention has been drawn to malarious and "other fevers" lately. I do not propose to enter into a controversy on the subject, but merely to show, by notes of a few cases, that malaria may affect other organs than the spleen and liver, which we have somehow got into the way of believing are only affected by this class of fevers.

It would be waste of space and time to note all the cases in which neuralgia was present more or less severely, so I shall only allude to one case.

A gentleman, formerly a sufferer from Panama fever, visited Pæstum in company with his brother. The brother escaped, but he got an attack of remittent, accompanied by most severe intercostal neuralgia. When first I saw him, I fancied that he must have been suffering from pleurisy, but as careful an examination as I could make under the circumstances, led me to decide upon

intercostal neuralgia, as being the cause of his sufferings. Hypodermic injections relieved the pain temporarily. But as it clearly depended on the fever, that had to be treated. Quinine up to a drachm a day did not succeed, so I had recourse to arsenic, and pushed that up to a drachm and a half of liquor arsenicalis, and with success. This patient tolerated the arsenic very well indeed.

Bronchitis is another complication. A lady, who had had jungle fever in India, had a shivering fit in Rome after a drive one evening there. The next day she arrived in Naples, and I saw her on the day following, with a well-marked but not severe attack of ague. After treatment, she recovered completely; but on her first expedition after her recovery, she stayed out too late, and got a fresh attack of her fever much aggravated; and in a few days bronchitis supervened. Neither bronchitis nor fever were amenable to treatment. I rang the changes on quinine and arsenic, and at last succeeded with liquor cinchonæ. As the ague became milder, so did the bronchitic sputa disappear; and when the fever took the quartan type, so did the bronchitis.

Congestion of the Lung.—A boy of 11 or 12 got thoroughly chilled at the top of Vesuvius, having forgotten his wraps. Some feverish symptoms appeared, which quinine checked. One day, in the forenoon, he was apparently quite well. Soon after he made a good dinner, and afterwards said he felt sleepy, and lay down. I was hurriedly summoned at five o'clock, and found him nearly breathless, and quite dusky in the face. One lung was completely choked, and dull all over; and fully a third of the other one in addition. Hot fomentations, a large dose of calomel, quinine, and jalap speedily relieved him of the congestion, and in a few hours the lung sounds left nothing to be desired. But he suffered a long time from the remittent, and it is doubtful whether he has, even at the distance of five years, completely shaken it off. The origin of this case, and the fact that this patient's brother and sister contracted fever at the same time, and under the same circumstances, would go far to prove the chill theory of the origin of ague; but I suspect that the chill only laid them open to the malarious exhalations, which would not otherwise have hurt them. In the case of the sister, the fever was obstinate, and recurred frequently after fatigue or exposure to the sun. It resisted quinine and arsenic and cinchona, but did not reappear after the administration of ten-drop doses of tincture of iodine twice daily for ten days.

An officer in the navy contracted fever on the China station. When he came under my care, he had congestion of the base of one lung, rusty sputa, occasionally florid hæmorrhage, and something very like clergyman's sore-throat. The fauces and throat were much congested, and from them I have no doubt the florid hæmorrhage proceeded. I never could get a good view of the vocal cords, as all attempts made him sick. There was irritability

of the stomach, want of appetite and debility in addition, and occasionally diarrhœa. A tuberculous family history made me apprehensive of phthisis following on his fever, but I never could detect anything to warrant that supposition. Now, each and all of these symptoms, debility excepted, disappeared at intervals completely. His voice and appearance changed for the time, and he appeared well though weak. This fever was not amenable to any treatment here, and as the hot weather was coming on, I recommended his return to England. I have since heard of his recovery, and also that my opinion of the state of his lungs was confirmed by one of the most eminent authorities in London. That the kidneys may also be affected, the following case will show:—A medical gentleman consulted me for what he considered to be the passage of a small gall-stone, or portion of inspissated bile, through the gall-duct. He stated that he had frequently suffered from the same complaint, and had found relief by taking a small dose of calomel and opium. I saw no reason for differing from his opinion, and I advised the same treatment, which had the desired effect. But he was also, I found, suffering from a slight attack of malaria, for which I recommended quinine. Before he began it, however, he was seized with what appeared to be an attack of gravel. The pain was most severe; there was tenderness of one kidney, and pain on pressure over the track of the ureter. Retraction of the testicle was absent; but from my own personal experience in a very severe attack, when this symptom was wanting, I did not hesitate in treating him for gravel. Tympanitis was very troublesome. In spite of large draughts of Vichy and Vals water, and water with bicarbonate of potash in solution, the urine continued to be scanty and high-coloured; but there was not a trace of blood in it. He perspired abundantly, however. One night he had the happy inspiration to take a dose of quinine, which acted like a charm on the kidneys, and by keeping it up there was no difficulty in securing diuresis; and with that all the pain, which we had accounted for by gravel, disappeared. The most careful search was made for calculi, but none were found; and from the nature of the precautions adopted, it was quite impossible that they could have escaped unobserved. There was nothing further of interest in the case, which in a short time yielded to ordinary treatment.

Phlegmasia dolens is a complication which is not unfrequently seen in typhoid cases. I have, however, met it in one case of remittent. This was a well-marked case, occurring in the person of a young lady who contracted the fever in Rome. Intense temporal neuralgia was a prominent symptom, and occurred with great regularity daily in the afternoon. The hottest possible fomentations were the only effectual means of relief. In this case, there was diarrhœa and much gastric irritability at the outset, and to that succeeded obstinate constipation. Quinine in pretty large

doses, followed by arsenic, and succeeded by liquor cinchonæ, completed the cure of the fever. But the leg was still very much swollen when the patient went to the north to avoid the hot season.

Fever of Whooping-cough.—We usually find some degree of fever preceding the evolution of the first paroxysm of whooping-cough, but it is rare to see cases like the following. The rarity must be my excuse for classing it under the head of fever.

An infant of six months old, at the breast, after ailing a little for two or three days, began to whoop, and was most unmistakably affected by the disease. Not long after, the child's brother, æt. three, began to show signs of illness, and this took the form of fever, running up to 104° Fahr. There were no spots observed, though strict search was made. The respiration was peculiarly shallow, the tongue thickly coated with white fur. There was some diarrhœa, but neither offensive nor excessive. Thirst was excessive. There was a drowsiness or sleepiness almost approaching to coma. At the end of ten days a marked whoop was heard, and convalescence commenced. The whooping-cough, as such, was very trifling, and soon disappeared. The same history will serve for the case of the sister of the boy, æt. five, with one exception, that in her case the temperature rose to 105° Fahr. Both of them seemed to have great irritation of the nose and eyes, as they were continually picking at them. In both cases the debility and emaciation were excessive, and in both there was a well-marked decrease of temperature after the first paroxysm of cough. These children had just begun to recover when their mother complained of severe pains all over, and after taking her bath in the morning sent for me, stating that she had a peculiar redness all over. This I had no difficulty in recognising at once as scarlet fever; and then the question arose as to what was to be done with the baby. After consultation with my friend, Dr Horatio R. Storer of Philadelphia, it was decided that the baby should, at all events for the present, remain with his mother. Neither he nor the other children, nor an elder sister, took the fever. The mother, baby, and nurse were isolated; but the latter had necessarily to leave the mother's apartments, so that the quarantine was not perfect. I strongly suspect that the nurse introduced the scarlet fever into this household, as I found that she had been to see some of her relations in a part of the suburbs where there is generally some epidemic. I was also requested to look at her throat just before her mistress was taken ill, and found it slightly ulcerated; and at the same time a housemaid complained of sore throat, but beyond a little congestion there was nothing visible. The lady peeled in due time, but I heard no further complaints from the servants. Scarlet fever in Naples is so mild that generally no attention, or very little, is paid to it. The cases that I have seen here were well marked as far as rash went, but caused the patient no inconvenience whatever.

Article IV.—*On Giant Urticaria.* By J. L. Milton.

Some years ago I communicated to the Medico-Chirurgical Society of London the particulars of a singular form of swelling attacking the skin. The remarks made by such of the Fellows as took place in the debate which followed, with one exception, showed that the disorder was quite unknown to them. The exception was Mr Robert Taylor, who stated that he had seen something of the same kind in the case of a sailor under his care, and that, looking on the affection as gout, he had prescribed colchicum with benefit. Sir Benjamin Brodie, to whom I showed one of the swellings, had seen an instance or two, one attacking the hip in a lady, but the cases were of a mild nature. He thought "caustic alkali" might do good, but confessed that he knew nothing whatever of the pathology of the disorder, and had not even ventured to give it a name. I believe he does not touch upon the subject in any of his writings. No one else to whom I mentioned the case seemed to have noticed anything of the kind.

Several years later, in a second edition of a work on Diseases of the Skin, I gave a compendious account of the paper read before the Society, and added, that the only notice I had met with of a disorder even approaching this in character, was one extracted by Professor Graves from Dr Oppenheim's work, where an affection is described as occurring in Turkey, which bears some resemblance to the malady I had pointed out, although too dissimilar in other respects to allow of our looking upon the complaints as identical. Of this affection Graves had seen one case in the Meath Hospital, but he tells us nothing farther. Since then I have met with four cases, the course and symptoms of which will, I think, justify me in saying, that the disorder must be looked upon as an urticaria of very complex character, embracing, in its somewhat wide ramifications, the affection described by Oppenheim, and presenting the peculiarity of attacking not only the skin, but also the tongue, fauces, and possibly the trachea, nares, and urethra; that it is intensely obstinate, and of such formidable appearance, and such extreme severity, both as to the size of the swellings and the discomfort they occasion, that, compared with the ordinary kinds of urticaria, it might well be spoken of as gigantic; and that in all the cases I have met with, it was accompanied by another affection of the skin, such as eczema or lepra.

Briefly stated, the facts in the paper read before the Medico-Chirurgical Society are these:—The patient was a gentleman, aged 34, and the attack was preceded by eczema, colicky pains, and neuralgia. The first swelling that showed itself extended across the top of the left thigh, in front, running just below Poupart's ligament. It was hard and painless, not in any way discoloured, the appearance of the skin being in every other respect natural.

It was broader at the inner than at the outer side of the limb, and measured quite three inches across at the former. This was the state of things in the morning; by night-time the swelling had disappeared, having occasioned little or no inconvenience beyond some stiffness. The next day a large swelling was observed below the crest of the left ilium; it was quite five or six inches long, about two broad, and raised fully half an inch above the surrounding skin, its outline being clearly defined. By the third day the left or front end of this swelling had become indistinct, and the other end had begun to stretch down the left side of the sacrum, but in a short time it took another route, and began to creep along the crest of the right ilium, where, by the fourth day, there was a fully formed lump, but when it had got a little more than half way round it began to lessen and gradually faded away. Meantime a smaller swelling formed on the upper and middle part of the left thigh, which gradually disappeared as the others had done.

For upwards of three weeks one or two of these swellings formed every day about the hips, crests of the ilia, and upper part of the left thigh, the right thigh not being attacked. During this time occasionally two showed themselves at once; one day there were three. From the end of the three weeks onwards they appeared less frequently and were more dispersed. At the end of rather more than four months from the first outbreak the face was assailed, the swelling attacking first the lids of one eye and extending slowly across to the other, each eye being in succession so firmly closed that not a ray of light could be seen, even when an attempt was made to open the eyelids forcibly with the fingers. On one occasion both eyes were perfectly closed for some hours. One or two swellings appeared now on the legs, and one or two small ones on the arms. The mouth also suffered about this time, the swelling quickly rising to such a pitch that the skin of the upper lip became firmly pressed against the nostrils. The throat was attacked three times; a surgeon, who examined it on one occasion, compared the appearance to that of bad cynanche, the uvula, soft palate, and tonsils being greatly swollen. Here the swelling formed very rapidly, reaching its climax in about half an hour. The sense of suffocation which it induced was almost unbearable, and saliva was poured out in large quantities.

The lumps were always clearly defined, the edge rising abruptly from the surrounding skin. They were extremely firm, and, when examined by the touch, gave much the same feeling as if the biceps of a strong man in training were being handled. They were never painful even on pressure. Some of them felt warm to the touch, but generally the only sensations noticed by the patient were extreme stiffness and distension. Usually the skin retained its colour, but some of the swellings on the arms and legs were of a pale pink, and one or two on the hips of a bright red. There was

no itching at any time, nor did any desquamation ever follow a swelling; but twice there was on the face an abundant secretion of sebaceous matter after an outbreak in that part. There was no constitutional disorder throughout. The patient certainly did not always feel in high health; but during the whole course of the complaint he showed no signs of illness, and, indeed, it was a most unusual thing for him to have any. The urine was healthy, as were the secretions generally, except that those of the skin were scanty.

During the access and at the height of the complaint no internal medicine proved of any avail, and no local application seemed to exert the least control over the swellings; vapour-baths, hot fomentations, and evaporating lotions were equally powerless. The stubborn complaint held its own against all remedies. Towards the close I thought that colchicum and bichloride of mercury hastened the disappearance of the malady, and at a later period these means, accompanied by seven-grain doses of iodide of potassium three times a day, apparently cut short a relapse. After the return of the complaint there was once a solitary swelling on one wrist, since which time the patient has remained free from his tormentor.

I never saw another instance of the disorder till 1873, when I met with two cases, which I give according to the order of time in which they presented themselves.

Mary C., a well-grown healthy-looking girl, twenty years old, entered as out-patient at St John's Hospital, 4th April 1873. So soon as ever she came into the room I recognised the affection, for there lay, across the face from temple to temple, an oblong tumour almost closing both eyes. It extended from about an inch above the eyebrows to quite as much below the upper edge of the lower eyelids; but while in the latter situation, and at the ends of the swelling, the margin was almost blended with the skin, the upper edge rose abruptly from the surface. Although the eyelids were so distended there was not the least discoloration of the skin, nor was there any vesication: in a word, the abnormal signs were limited to the tumour, which, I may here state, was quite hard. The girl's account was that she had been troubled with these swellings for quite eighteen or nineteen months, during part of which time she had also been occasionally tormented with eczema, the attacks of the latter complaint, however, not being severe. The swellings were entirely confined to the part of the face just mentioned. They were never larger than the present one, often not so big, one eye only being sometimes attacked. On all occasions they formed with great rapidity, wore the same look, and ran the same course. She complained much of the discomfort from the stiffness and hardness set up in the skin by these swellings, which were accompanied by a moderate amount of itching. A week never passed without an attack, and frequently there was one

every second day. The complaint began without any manifest cause, and there had, so far, been no abatement of its severity. She described her general health as excellent, and her digestion and menstruation as being in good order; during her long attendance I never had reason to think that the statement was incorrect.

Having seen so little result from previous attempts at treatment, I resolved this time to try a different plan, and deal with the case to a great extent as if it were eczema. The girl was accordingly ordered ten-minim doses, three times a day, of the acid solution of iron used at the hospital, which is made by dissolving, in strong hydrochloric acid, pure clean iron wire till the acid will take up no more of it, the point of saturation being about reached when an ounce of the metal has been absorbed. The dose of this was gradually increased to twenty minims, and after a few weeks a small quantity of the Pharmacopœia chloride of arsenic solution was directed to be taken three times a day after meals. A pill containing a grain of the acetic extract of colchicum and the same amount of blue pill was prescribed for use at bedtime. The vapour-bath was employed once, and then twice a week all through the course of treatment. She was recommended to keep to the diet usually advised for urticaria—that is to say, plenty of farinaceous food, puddings made of Chapman's flour, the more digestible kinds of vegetables, such as peas and potatoes, milk, eggs, fat ham and bacon, rabbit, white fish, and so on; excluding all heavy meat like pork, hard beef, especially in large quantity, goose, and shell-fish. Red wine was substituted for beer, the latter in every shape being forbidden.

Thanks, perhaps, to her youth, the girl soon gave an encouraging report as to the action of this treatment. The tumours began to appear less frequently, and those which showed themselves were both smaller and softer; they also itched less,—effects which she ascribed to the vapour-baths. Her health, though so good before, improved in this much that she felt better and lighter, with more desire for food. For my own part, looking to the little influence exerted by any kind of means in the first case, and to the possibility of the subsidence in the complaint being spontaneous, I did not feel any enthusiastic conviction; but as the case certainly improved while these measures were being carried out, and as I knew of nothing better in the way of treatment, I thought the best plan was to "let well alone," and perhaps this was the wisest thing to do. At the end of about five months I considered that she might be looked upon as cured, seeing that for some little time there had been no swellings at all, and that those which had appeared were much milder in character. I therefore advised that the medicine should be left off for a week, and then, after a week's resumption of it, for a fortnight, and after that for three weeks. There being no relapse, she asked to be discharged, her own voluntary statement being that she felt she was cured. The remark certainly implied a strong conviction on her part, as she had been so much

worried by the unsightly look and long continuance of the swellings, that during her attendance I believe she had never missed taking a dose of medicine or infringed a single direction.

Strictly taken, the following case does not belong to this form of disorder, but it is given because it may help to point out a common tie between ordinary urticaria and the affection which I have been endeavouring to describe, inasmuch as the respiratory passages were here possibly affected much as in the first case, the disease yielded to the same remedies that were used in the second and third, and the complication of eczema was present.

Lord ——, a short, well-made man, in the prime of life, consulted me, 11th July 1873, for urticaria, giving the following history:—He was naturally of robust health, of very active habits, and lived temperately. I could not trace the affection to any errors of diet; there was no evidence of gout or rheumatism. A little more than two years before, while otherwise in the enjoyment of excellent health, he had been attacked with difficulty of breathing, which induced him to seek the aid of a physician, and then, as the symptoms did not abate, that of a gentleman having a large practice in diseases of the throat. These gentlemen gave an unfavourable prognosis; but the affection, having reached almost a fatal height, began to subside. The attack passed off, and the patient remained free from any relapse, till a few days before he came to me, when the very same symptoms showed themselves; but so soon as ever the urticaria broke out, the affection of the throat, whatever it may have been, began to decline, and soon passed off completely; nor did he ever suffer from it while I attended him, during the whole of which time he was not for a single day free from nettle-rash. The latter affection was severe enough throughout great part of his attendance. A pretty large extent of skin on the surface of the arms, chest, abdomen, and upper parts of the thighs, was almost always covered with pink wheals, new ones rising with extraordinary rapidity as the old ones disappeared. They were accompanied by such burning, itching, and tingling, that at times the patient's hands were seldom quiet. These swellings, however, bore no resemblance to those seen in the other patients, being very little raised above the level of the skin, and often most irregular in their outline, while the others were usually semi-globular, oval, or oblong, with an unbroken margin.

The patient was put upon moderate doses of tincture of sesquichloride of iron, which were quickly raised to a drachm, three times a day, accompanied, after a short time, by five-minim doses of the Pharmacopœia solution of arsenic chloride, also three times a day; colchicum was prescribed to be taken occasionally at bedtime. No external application, beyond the free employment of vapour-baths, was resorted to. I saw the patient pretty regularly till the 8th of August, by which time the disorder had somewhat abated. Soon after this he left for a cruise, taking with him an

ample supply of steel and arsenic. He continued the treatment while away with great regularity, and, on the 7th of December, wrote to me, saying that he had been well for some time, and that he attributed his recovery to the large doses of iron which I had ordered him. In the following summer he consulted me for an attack of eczema.

On the 17th of October in the same year, Mr A. C., a strong, healthy man, came up from the country, and placed himself under my care for this disorder, from which he had been suffering, in one shape or other, more than seven years. It attacked the eyelids, face, glans penis, and scrotum. There was also, on some occasions, a great degree of irritation in the nostrils, the mucous membrane feeling as if cayenne pepper had been introduced up the nose; the tongue was affected in the same way. The eye assailed was firmly closed for the time, so that he could not see at all with it, and sometimes from ten days to three weeks elapsed before he recovered his proper sight. Occasionally, the swelling extended from one eye to the other, affecting both in succession; twice or thrice both eyes were attacked at the same time. The swelling always began over or near the malar bone, and extended to the lids of the eye. After it had passed off, the ocular conjunctiva was often a good deal congested, which was not in any way the case with the other patients. He seldom passed a fortnight, and never more than three weeks, without a visitation of this kind. The swellings were not hard, and he described their colour as more like that of erysipelas than the natural hue of the skin. The itching in them was sometimes excessive, and was generally severe by the second or third day, at which time the skin often began to assume what he described as a hard, baked appearance. As to the duration of the swelling itself, he estimated that, from the beginning to the final subsidence, it occupied from twelve to thirty-six hours.

The complaint had followed eczema, and possibly some degree of impetigo. The latter eruption he described as red, irritable while the inflammation lasted, and succeeded by matter underneath the skin. He was still subject to outbreaks of the former disease on the inside of the prepuce, which were as sudden in their recurrence as the enlargements on the skin. The impetigo, supposing it really was such, seems, in its turn, to have followed a kind of herpes, the first intimation of either being as follows:—

One night he was roused from sleep by an unusual sensation in the organs of generation, and on looking found all the foreskin, both inside and outside, covered with bladders full of brown serum, while over the mouth of the urethra a swelling, the size of the largest split pea, had formed, closing up the orifice so firmly, that it had to be opened with a needle, and the sides of the canal had to be forcibly dragged apart, before he could make water. Under the supposition that the patch might be a blister, he pierced

it, but it proved to be quite solid; he also punctured the vesicles on the foreskin, which, however, really contained serum. The process of opening the urethra had to be repeated the next time he made water.

At the end of a week, finding that the disorder had not abated, he went to a surgeon, who treated the case with mercury internally, and what seems to have been lead lotion as an outward application; but the blisters, as the patient called them, gained ground, and after a time began to break out in the neck, a little below the ears, and behind the jaw, then on the chin, and finally on the scrotum and glans. In 1869 they attacked the inside of the eyelids of the right eye, and the physician, whom he now consulted, "let the blisters out;" their appearance in this part was attended with great suffering. The vesications, he said, generally formed during sleep, and began with a pricking sensation. There was a good deal of attendant inflammation, and when the glans was invaded, it swelled, but never so much as to prevent the foreskin being drawn back. Where only a flat surface was involved, the blisters speedily healed up, but where there were two opposed surfaces, as under the foreskin, or in the fold between the scrotum and thigh, the secretion became purulent. The urethra almost constantly yielded a little fluid, which he compared to thin blue milk.

This state of matters went on for about three years, and then appeared to be dying out, so far as the herpes was concerned, but the discharge from the urethra continued, and even grew thicker. An impression now sprang up in his mind that he must somehow have contracted a venereal disease, and in consequence he went to a physician, who prescribed an injection. This gave him great pain, and, after a few days, much irritability of the bladder set in. At the end of three weeks the urethra had become so narrowed, that he could only make water in a stream like a thread, the channel being blocked up by a slough. This, however, he contrived to force out of the urethra, and after that another, the last being followed by some blood and serum. The injection always threw down a stone-coloured sediment, and he said that the sloughs were of the same hue.

He now tried another medical attendant, and under his treatment got so far better that the disease ceased to spread, and even shrank to its original dimensions, with intervals of freedom lasting from one to three weeks. Matters ran their course in this way till the disorder had lasted more than four years, when it all at once entered upon a new phase; for one morning in the spring of 1871, the date of which he could not, as regards the time of the year, fix more accurately, when he was out walking, he found a burning pain in the scrotum, and, on looking, noticed that the seat of the sensation was much inflamed, as was all the under surface of the penis—a state quickly followed by great pain in the glans. From this time forth the attacks were of this nature, and no more

blisters appeared. From this time forth he never passed a week without an attack in these parts, and generally had one every four, five, or six days; sometimes the glans alone was attacked, generally the scrotum also. A month or two after the new disorder had broken out on the penis and glans, and consequently early in the summer of 1871, the eyelids began to participate in the disturbance, and from now onwards, a relapse took place here every two or three weeks at least. The first attacks in this part and in the cheek were slight, not lasting more than five or six hours, and he could see after one; those in the private parts he spoke of as being very severe at this time. Contrary to what formerly happened, he could not now get the foreskin back for a week at a time; but indeed one attack seems, according to his dates, to have shown itself before a preceding one had subsided. He also stated that the foreskin now smelt as if it were mortified. For some months the disorder seemed to have spread to the posterior part of the urethra, connexion with his wife being followed by great pain in what he considered to be the "bladder-neck," and the discharge of a little blood.

The outbreaks could not be traced to any errors of diet. His own suspicions had lighted upon this as a possible cause of his sufferings, and at first he thought that several articles of food were instrumental in bringing on relapses; but after a while he came to the conclusion that it did not matter what he ate. He had fretted a good deal about the long persistence of his complaint, and his inability in consequence to follow his occupation, that of a musician; latterly, too, he had become weak and low-spirited, from brooding so much; but, except in this respect, his health was not impaired.

He was put on salines for a fortnight, and the use of these was followed up by the employment of the acid solution of iron and colchicum in pills; shortly after, the solution of chloride of arsenic was added. He was directed to take a vapour-bath once, and, if possible, twice a week; all stimulants, except hollands and wine, were interdicted. In about four weeks, he left London, somewhat improved. On the 14th of December, he wrote to say that he was assiduously continuing the treatment, and taking the vapour-baths twice a week; that he was better as regarded the swellings, and had had no return of the eczema. On the 30th of July 1874, I received another letter from him, in which he informed me that he had had only one attack for some weeks; it was in the left eye, and had happened twenty days previous to his writing. He was continuing the treatment, especially the baths, and reported himself as improving in every way. He had meanwhile been ordered rum and milk, and thought he had derived benefit from this addition to his diet. On 30th December same year, he reported that since June the eyes had only been affected twice, and the foreskin two or three times, the outbreaks in the latter being now

very slight, and not accompanied by any discharge. The last communication from him, while still under my care, was on the 24th of June 1875, when he wrote, saying, that some medicine prescribed for another complaint had disagreed with him, but as concerned his old malady, he had for some months been very little troubled with it. At my suggestion he had long confined himself to a small amount of medicine, suspending the use of it first for a day or two, then for a week, and so on, till he could dispense with it altogether. The diet and baths, however, had been regularly kept to. On inquiring lately, June 1876, I found that he still continued well as regarded the eruption, but that a change in the weather brought on a feeling as if it would break out again, and there was still some tenderness of the urethra.

The next case that came under my care was that of a Jewish dealer in curiosities, thirty-nine years old, a man of extraordinarily strong build and great muscular development, who consulted me, 2d April 1876, and in whom I again immediately recognised the affection, as at this very time the left eye was almost closed by a somewhat abruptly outlined swelling, of the colour of the skin which encircled it. Here, too, the morbid indications were strictly limited to swelling—there being no signs whatever of any inflammatory process. He said he was most anxious to be freed from this distressing malady, of which he gave the following particulars :—

He had suffered from it between seven and eight years, but had never had any other illness except syphilis. He had far too good health, he said; and his explanation of this strange statement was, that everything which would make another person thinner—such, for instance, as a bad cold or a low diet—only served to make him gain in weight and muscle. The complaint began without rhyme or reason, and though he had been repeatedly asked the question, he had never been able to connect the first or any subsequent attack with errors of diet, or indeed any cause whatever; besides, he reported himself as extremely temperate in his habits, seldom taking more than a glass or two of claret, the only thing in which he indulged being tea, of which he was very fond, and drank a great quantity.

An attack, he said, always began with a feeling of being out of sorts, accompanied by catarrh, loss of appetite, and sense of oppression at the stomach, speedily followed by swelling of the tongue and fauces, and an offensive odour of the breath, from which he was at other times perfectly free, with a still more offensive odour of the urine, after which a lump appeared on some part of the body. These symptoms subsided in the same order as they appeared, only that they declined so much more slowly in the skin; for while the stomach and tongue returned to their normal state in about a week, the enlargement and thickening of the skin often endured quite a fortnight. The swellings formed principally over the deltoid and belly of the biceps, the acromial

end of the clavicle, and the muscular parts of the thigh ; the penis, scrotum, inside of the thighs at their junction with the latter, the perinæum, lips, and eyelids often suffered in their turn, but the swellings in them were less defined. Although both eyelids swelled, there was no blindness as in the first case ; generally only one eye was attacked at a time. He assured me that some of the lumps on the thighs were as big as his fist—and as the said fist looked quite capable of prostrating a small horse, the reader can form an idea of their size, always supposing the patient's estimate to have been strictly correct. They were not accompanied by any visible morbid changes in the part of the skin attacked ; but, subsequently to the appearance of a swelling, he frequently suffered from an affection of the skin, and particularly on the arms, which, by his description, I judged to be pityriasis rubra. One of these was now beginning on the arms, and, on looking, I found almost the entire surface of both arms red, furfuraceous, and tender. This was the appearance which the eruption usually wore, but at times there had been a discharge of serum. After the inflammation had passed off, he said, the skin of the hands grew stiff, then swelled, cracked, and finally peeled off. About five weeks later he actually showed me his hands with the skin exfoliating in small flakes.

The lumps on the limbs he described as being of the hardness of stone. They were, according to his version, always of the natural colour of the skin, but his wife, who was present, said that some of the earlier ones were almost white ; the itching in them and the surrounding skin was so severe, that he assured me he had often entreated those around him to restrain him by force from scratching the affected parts. Over the surface of a swelling, and for some distance round it, there were sometimes a number of small nodules, not larger than split peas, and this state was occasionally preceded by a similar condition of the mucous membrane of the cheeks and sides of the tongue, which felt as if they were full of shot.

The patient had consulted several medical men on the Continent, and one in England, about his complaint, but none of them had ever seen the disease before. The principal remedies ordered seemed to have been Turkish baths and aperient pills, and, judging from what he told me, I should say that never yet did patient carry out more conscientiously the law laid down for him, seeing that, after trying the Turkish baths of France, Germany, Belgium, and Holland, he actually arranged to go to St Petersburg, where, he was told, he could get the best baths in the world, and stayed there six weeks for this express purpose, taking four-and-twenty Russian baths in that space of time ; while of the pills he had for years systematically taken eight a day without once missing. In addition to this he had, seemingly on his own responsibility, and because he thought it necessary to work something out of his system, repeatedly tried sulphur, vapour, and starch baths.

So far, however, as I could make out, these remedies did not seem to have exerted any influence over the disease; on the contrary, he was at the end of five years worse than ever. At this time the disease had apparently reached the turning point, as since then he has not suffered so badly, although even the last outbreak was formidable enough. The attacks always come on in the winter and spring, during which time he is never long free from them; during summer he enjoys a respite, and indeed he finds that any heat, even that of a fire or a furnace, gives him relief. He is perfectly free from gout or rheumatism, and this, so far as he knows, has been the case with all his family. A brother had been afflicted with epilepsy, and I myself saw the son of this brother in an epileptic fit.

Up to the present time the patient has been too much occupied to permit of his attending regularly, or putting in force a systematic plan of treatment. He was therefore merely advised to reduce the number of pills very gradually, to substitute for them a saline mixture, and to follow this up with steel and arsenic. When I last saw him he had brought down the dose of the pills to two daily, and bore the steel and arsenic very well; he had had no attack since he began this treatment, but to this I do not attribute any importance, seeing that, as has already been mentioned, he usually enjoys immunity during the warm months.

The next and last case differs from the others in not attacking the face at all. Sidney S., a short, stout, very healthy-looking man, thirty-four years old, came under my care as out-patient, 14th June 1876, with this affection and lepra, the latter to a very slight extent only, being limited to some small and not very well marked spots just below the left knee. He gave the following history of his case: When quite a boy he used to suffer from an occasional eruption of patches on the face, which, from his account, seem to have been erythematous; but I need scarcely say that it is not very safe to decide upon such points from descriptions given by patients of incidents so long past. About eight or nine years ago a scaly eruption showed itself on the front parts of the wrist; for this he was advised to use glycerine locally, and did so with benefit. Rather more than three years ago he entered under me for a leprous patch on the front and lower part of each knee. These spots were about the size of a two-shilling piece; they yielded slowly to treatment, and at the end of between eight and nine months were a good deal better, but not quite well. He was now, November 1873, obliged to go into the country, and the management of the case was, so far as regards my own share in it, abandoned for a time.

In August 1874 he was, after being greatly heated, exposed to a chill by standing in a draught; but the exactness of his inference here is rather questionable, as I found, on going more fully into the matter, that he really only stood still in the place where he had

been working all along. About three weeks after this he noticed that a swelling as big as a hazel-nut had suddenly formed in the right ham. This was soon followed by another, and the second by a third, there having been up to the present time, he says, quite fifty of them. They gradually increased in size till they became as large as eggs, reaching their acme in the following February, from which time they slowly declined. One was so big that the right knee, where it was seated, swelled till it measured 19½ inches round, the regular circumference now being 16 inches. He cannot say what it was previously, for he tells me that the joint has never since been reduced to its former size, and that he sometimes finds it painful when he stands long, but the circumference of the sound limb is at present 15½ inches. This lump resembled in its course that on the crest of the ilium in the first case, for it began on the outer side of the thigh quite five or six inches above the knee, and crept downwards and forwards till it got under the patella, where it ended.

Most of the swellings formed in fleshy regions, such as the calf of the leg, and the muscular parts of the thigh and upper arm. They grew very slowly, taking about a week to reach their full size, and about two weeks to disperse; some of the largest ones lasted a month, while the last he had before coming to me only endured for nine days. Usually they wore the natural hue of the skin, but some of them were of a deep pink, and one on the inside of the right thigh was bright red; occasionally, on declining, they took on a greenish hue. There was no itching, but now and then a lump felt painful under pressure, or when any strain was brought to bear upon the affected part. Sometimes they felt hot, and this was particularly the case with the large one on the right thigh; but, as a rule, their appearance was unaccompanied by any sensation, unless, as just mentioned, when pressed upon; rubbing of the clothes against them often induced a similar sensation, and in a few there was, at the beginning, a feeling as if a fold of skin had been pinched. The patient tells me that these swellings were as hard as brick or wood. They always broke out singly, with one exception, and then he had one on each hip at the same time; however, it would now and then happen, when they came out very quickly, that there were five or six at a time on him in various stages of increment and decay. He cannot recollect that they ever appeared more at one part of the day than another, but his uncertainty on this head may be partly due to the fact, that he often did not know of the existence of the lumps till warned by the sensation they yielded when pressed upon or struck.

A surgeon, to whom he went for advice about this disorder, prescribed what the patient learned was a preparation of potass, possibly the iodide of potassium, accompanied by a purgative, as he was directed to keep the bottle containing it tightly corked and in a cool place, and because it sometimes opened the bowels five or

six times a day. More he could not tell me about the matter, but he stated that the effect of this medicine was to reduce his weight fourteen pounds, and to lower him so that he could not feel his pulse—the latter observation being of course a mistake. This treatment did not seem to have exerted any control over the swellings, and he was then advised to try Turkish baths. As he had an opportunity of doing so without any great outlay, he put the recommendation so thoroughly in force, that he took about seventy baths without ever pausing long between, with the result that a steady decline took place in the number and size of the swellings, though they still occur now and then.

On the 21st of June he showed me one of the lumps. It was seated over the right fifth rib at the junction of this bone with its cartilage, its greater axis being about parallel with that of the rib. It was above an inch long, and about two-thirds of an inch wide. In bulk it might have been compared to the half of a good-sized walnut with the shell on; it was more oblong and not so thick, but what it wanted in this way was more than made up in extent. It was extremely hard, and almost immovable. The swollen skin retained its natural colour. Pressure on the part, he said, gave him deep pain over a considerable extent.

It will be seen that the disorder differs widely from even the most severe forms of urticaria caused by some substance, which the patient has eaten, acting like a poison. There was no tale in any of these cases of the symptoms which characterize the latter; the pain and distension in the stomach, anxiety at the præcordia, constriction of the fauces, sickness, rapid pulse and burning heat, followed by stinging and burning of the skin, succeeded in their turn by a copious rash and violent itching. It is equally distinct from the tuberose form of urticaria occasionally seen in the weakly, aged, and rheumatic; while anything like such long recurrence has, so far as my knowledge goes, only been noticed in common urticaria, from which also it is widely separated.

Those familiar with Dr Oppenheim's description of the Turkish disease, or Professor Graves's abridgment of it, will have noticed certain points of resemblance between it and the disease I have tried to portray. Some of my readers may not have seen either, and I therefore give a brief notice of the subject, taken from Professor Graves's Studies on Physiology. The patient, it is stated, goes to bed well, but wakes in the morning with one or more tumours on his limbs. They are generally seated at some distance from the joint, and at the inner or flexor side of the limb. They are globular, but not very sharply circumscribed, scarcely movable, and very painful to the touch. They are not discoloured or red, neither are they hotter than other parts. They vary in size, from the bigness of a filbert to that of the fist, and acquire their full size in a few hours. They are oftener met with on the upper than on the lower limbs, and on the leg and forearm than on the thigh and

arm. They may also appear on the palm of the hand and sole of the foot. The reader will observe, that while many of the symptoms, such as the globular shape of the tumours, their hardness, immobility, and occurrence during the hours of sleep, are to be found in one or other of the cases related, no one patient presented all the features of the Turkish malady; and some of those in the latter, such as the appearance of the disease on the inner or flexor side of the limb, on the palm of the hand and sole of the foot, and their greater frequency on the leg and forearm than on the thigh and arm, are altogether wanting.

If the name, giant urticaria, be objected to, I can only reply that I know of no better; and should any one urge that it is inexpedient to augment the existing confusion about diseases of the skin by introducing new terms, I must plead in justification, that I am quite alive to the necessity for steering clear of such an evil, and that I have never sought after novelties of this kind, preferring to leave nomenclature where I found it. Consequently, I wish to be understood as merely suggesting the title, and referring the decision on its propriety to the judgment of the reader.

ARTICLE V.—*Notes of Cases of Disease of the Heart; with Remarks on the Effect of Over-Work on the Heart and Aorta.* By JAMES BARR, M.B., L.R.C.S. Edin., late House-Surgeon, Northern Hospital, Liverpool.

1. *Case of Aortic Obstruction and Regurgitation. Dilated Hypertrophy of the Left Ventricle, Reduplication of the First Sound, and Pericardial Friction.*

J. D., æt. 40, labourer, married. Admitted under the care of Dr Davidson, 5th June 1875, complaining of cough, pain in the chest, and lightness in the head.

He says that he enjoyed good health until nine months ago, when he fell a distance of nine feet, hurting his left side. About three weeks after this accident he was suddenly seized with a dull pain over the region of the heart. Since then he has been frequently troubled with dizziness and frontal headache. There is no history of intemperance, syphilis, or acute rheumatism. At his employment, loading waggons, his work has been invariably heavy, and he was often subjected to very weighty lifts.

Present Condition.—He looks prematurely old. His weight is now only ten stones, whereas when last weighed (about four years ago), he says he was above twelve stones. His muscles are moderately firm, digestive system good.

Physical Examination.—Heart; apex beat is situated in the sixth interspace, and the transverse dulness measures five inches.

There is marked retraction of the intercostals during systole. Over the septum the first sound is reduplicated, but single to the left or right of this situation. The first element is most intense over the left, and the second loudest over the right ventricle. At the apex area the first sound is accompanied by a double friction murmur, the greater part of which precedes the sound, and is of rough quality, not unlike the auricular systolic murmur; but careful auscultation leaves no doubt in my mind as to its exocardial origin. The pulmonic second sound is *not* accentuated. Along the whole sternum, but most intensely at the aortic cartilage, are heard an obstructive and a regurgitant murmur. Pulse 90, visibly throbbing in all the superficial arteries. Urine contains a copious deposit of urates, but no albumen.

In this case we have got the first five conditions, and partly the sixth, mentioned by me at the end of this paper, and which no doubt occurred in the order of succession there pointed out. The pericarditis was most likely the result of the injury. Regarding the reduplication of the first sound, I believe it to be due to asynchronism in the tension of the tricuspid and mitral valves. The healthy right ventricle was stimulated to commence contraction before the dilated, and perhaps less sensitive, left; or the fatty musculi papillares of the latter cavity were longer of applying the proper tension to their valves. The reason why the right had not completed its contraction first, and so led to reduplication of the second sound, was, that the left acted as a blood reservoir, and only partly emptied itself during systole.

2. *Case of Aortic Obstruction and Mitral Regurgitation. Emphysema.*

F. D., æt. 52, single, labourer. Admitted under the care of Dr Davidson, 11th January 1875, complaining of "shortness of breath, and swelling of the ankles."

He is a stout, well-built man, who always enjoyed good health up to eight years ago, when he was treated in "Guy's Hospital for syphilis." About four years ago, he had a skin eruption, which is now evidenced by a crowd of depressed, round, white cicatrices on the right shoulder, and a few in other situations. Since the latter date, he says he has been troubled more or less with dyspnœa, but was not obliged to leave off work until last August, when he was laid up for two weeks with "dropsy." *His work has been always very heavy.* He never had rheumatic fever.

Present Condition.—Slight swelling of the ankles, dyspnœa, cough, and slight expectoration of frothy mucus, and his muscles are soft.

Physical Examination.—His chest scarcely moves, the respiration being almost entirely abdominal. The lungs are very emphysematous in front, and congested at their bases posteriorly.

Cardiac and hepatic dulness rather small, no doubt owing to the emphysema of the lungs. Heart sounds feeble, rhythm slightly irregular. At the apex there is a soft blowing ventricular systolic murmur, commencing just after the first, and running up to the second sound. There is also an aortic obstructive murmur of a much louder and coarser quality. Pulse 85, slowly filling and attaining its acme rather in a wave-like than percussive manner. Urine non-albuminous. Other systems normal.

Under the influence of a good diet, rest, a mixture containing carbonate of ammonia, sp. etheris, sp. chloroform, and camphor-water, and afterwards a tonic, he greatly improved, and was discharged on 19th February; at which date the mitral regurgitant murmur was musical in character, and wanting with many of the ventricular systoles. Pulse 96, weak; same character as before. No cough nor expectoration, nor œdema.

This patient had arrived at the seventh condition stated at the end of my paper, but with the omission of the fourth, and consequently of the fifth; under careful treatment his heart returned again to the third state. The emphysema would throw an additional strain on the right ventricle.

3. *Dilated Hypertrophy of both Ventricles. Atheromatous Aorta, with Incompetence of the Aortic Valves. Secondary Dilatation of the Mitral and Tricuspid Orifices. Death. Autopsy.*

A. B., æt. 30, labourer, was admitted under the care of Dr Davidson, about the middle of November 1874, complaining of "difficulty of breathing and palpitation of the heart."

History.—His present complaint began between three and four months ago, and since then he has been getting gradually worse, and is now wholly incapable for work. Previously to this, he always enjoyed good health, and never suffered from rheumatism. His work has been always heavy, and he has often been subjected to great strain.

Present Condition.—He is a well-built man, without any superfluous fat, but with large powerful muscles, which are now rather soft and flabby. He has considerable difficulty of breathing. Respirations 30; pulse 80–90, regular, visible, full, and collapsing. He coughs occasionally, but has scarcely any expectoration.

In examination of the chest, the heart's apex is found to be situated in the *fifth interspace, and in the line of the nipple.* The cardiac percussion measures *five inches transversely,* and four inches vertically. Along the whole sternum are heard loud, aortic, obstructive, and regurgitant murmurs. At the apex is heard a soft, blowing, ventricular, systolic murmur of a much finer quality than that of the aortic direct murmur. The lung percussion is clear; chest expansion good; inspiration full in volume, and only accompanied by a few bronchitic râles. Hepatic and splenic

dulness normal; digestion good. Urine rather diminished in quantity, and contains a deposit of urates but no albumen.

With quiet rest in the hospital, good diet, and an ethereal mixture, he greatly improved. His lungs became free from râle; the evidence of dilatation of the left ventricle rather lessened, and the mitral murmur ceased. But after a few weeks' residence in hospital, he left, and resumed his work.

He was admitted again, about the middle of March, in a very bad condition. The dyspnœa was urgent; pulse quick, and visibly throbbing in all the superficial arteries. There was abundant expectoration of frothy mucus streaked with blood. The percussion was dull at the bases of both lungs posteriorly, and numerous moist râles were heard over the whole chest. He vomited frequently, and the matter ejected consisted of food, mucus, bile, and blood. Urine scanty, and highly albuminous. The cardiac dull percussion had now extended to *the right of the sternum*, and from this to the apex beat, which was very diffuse, and situated in *the sixth interspace, an inch beyond the nipple line.* Along the sternum the aortic, systolic, and diastolic murmurs were well marked, and the *mitral regurgitant murmur* was now very loud, both at the apex and the lower angle of the scapula. There was also now *tricuspid incompetency*, as shown by venous pulsation, and a soft-toned murmur over the right ventricle. The hepatic and splenic dulness much enlarged. Epigastrium tender to pressure. He became gradually worse, and died a week after admission.

At the post-mortem, forty-eight hours after death, the body was found to be well nourished, cadaveric rigidity well marked, and lividity chiefly of the dependent parts. The heart was enormously enlarged, and weighed twenty-six ounces; pericardium healthy; the left ventricle was greatly dilated and hypertrophied, fibres streaked with yellow mottling. Mitral valves thickened and atheromatous; orifice dilated so as to admit four fingers; the aortic semilunar valves are thickened and shrivelled up; aorta very much thickened with atheromatous deposit; the right ventricle is greatly dilated, and slightly hypertrophied; muscular fibre pale, but not so yellow as that of the left ventricle; tricuspid orifice admits five fingers, but valves are healthy, as are also the pulmonic valves and pulmonary artery; both auricles dilated; lungs congested and œdematous; liver weighs $4\frac{3}{4}$ pounds, and presents red and yellow mottling; spleen, fourteen ounces, congested and firm; kidneys healthy, but congested, as were also all the other viscera.

In this case we have got the whole of the morbid conditions mentioned at the end of my remarks, and their order of sequence was that as there pointed out.

Remarks.—These cases are fair examples of the early de-

generation of the vascular system, which is so common in our labouring population, and belongs to that class of diseases of the heart which arises from mechanical injuries or over-exertion; the etiology of which has gained considerable attention of late years. The evil effects of over-work on the circulatory system is in many instances over-rated; yet there can be no doubt that in numerous cases, the dire consequences of prolonged or acute strain are only too apparent, and will continue so long as our social conditions subject one part of the race to an amount of toil inconsistent with the capabilities and maintenance of the integrity of the human machine.

In an able paper in St George's Hospital Reports for 1870, Dr Clifford Allbutt has clearly depicted this class of disease, and grouped the cases into an order, with special reference to the sequence of events. He believes the order in which the chronic morbid changes occur, to be, "1st, dilatation of the right heart; 2d, dilatation of the left heart; 3d, in reason, if not in time, hypertrophy of the left ventricle, or of both ventricles; 4th, chronic inflammation of the aorta and aortic valves; 5th, dilatation of the aorta; 6th, incompetence of the aortic valves; with, 7th, further compensatory hypertrophy of the left ventricle; 8th, loss of compensatory hypertrophy, with consequent rapid failure, and often with consequent mitral regurgitation."

No doubt, the above order is in perfect harmony with well-recognised facts, and that primary dilatation of the right ventricle may arise from over-exertion, is within the personal experience of many, but that the sequence is invariable, is open to grave question.

In soldiers who perform their drill with constricted chests, or in the case of others with small chests who are undergoing great bodily fatigue, the pulmonary area is small, while at the same time the system is craving for an increased supply of oxydized blood, and thus an extra strain is thrown on the right ventricle; the heart's action becomes excited, but that ventricle is unequal to its task, and dilatation—which soon makes the individual aware of its presence—is the result. The same effect follows where the fluid supplied to the right ventricle does not contain a sufficient quantity of oxydizable material, as where proper oxydation is prevented by deficiency of area.

In all these cases of primary dilatation of the right heart, the palpitation and beating in the epigastrium, the dyspnœa, and incapacity for exertion, are all well marked. The surface becomes cold, countenance anxious, and urine scanty; there is loss of appetite, vomiting, and other symptoms of venous congestion.

In other persons with large chests and well-nourished bodies, we may have, as a sequel to prolonged fatigue, primary dilatation of the left ventricle, or this may be also associated with dilatation of the right heart. Here, at first, the trained muscles do not require

an inordinate supply of blood, the left ventricle is quite competent for its duty, and the right supplies a sufficiency of oxygenated material to the system; hence the heart works well and steadily. But gradually the muscles get exhausted, they lose their chemico-vital affinity for the blood; retention of the effete material, with capillary obstruction, and increase in the arterial tension follow. Thus, a great strain is thrown on the left ventricle at a time when its stored-up energy is nearly all spent; it is unable to meet the demand, and dilatation is the result. This may be accompanied or followed by overloading of the pulmonary circuit, with consequent distension of the right chambers also. The symptoms in these cases are pretty similar to those described when speaking of dilatation of the right heart.

I here wish to draw attention to a paper by Dr Mahomed, in the *British Medical Journal*, 18th March 1876, on "The Effect of Prolonged Muscular Exertion on the Circulatory System."

How different to the foregoing is the history of many of our labourers; very often they never have any symptoms referable to the heart until some irreparable lesion has taken place. When one of them calls to see you for a bilious headache, or some such other ailment, you may quite accidentally discover that he has got dilated hypertrophy of the left ventricle. This might, perhaps, hardly be called a disease, as it is only an increase of power to meet the demand—a maintenance of the balance of the circulation; but sooner or later this compensatory hypertrophy will fail, and then it will become a disease, which will make itself known by no uncertain signs; and then, and not till then, will the right side of the heart become diseased, and that only as a secondary consequence.

This class of persons are not in the proper sense of the term over-exerted, *i.e.*, their work is not greater than their trained muscles are easily able to accomplish. They care little for their employer's interests, and will do as little as they can; but still their work is heavy, and in their own sluggish manner they raise —as Dr Haughton would say—a great many foot-tons daily. A few days ago, I saw a strong, muscular man, aged about thirty, who was suffering from headache, but who had not the remotest idea that there was anything the matter with his heart. I quite casually happened to examine that organ, and found considerable hypertrophy, with dilatation of the left ventricle, and also a slight mitral regurgitant murmur. His pulse was full, regular, and strong. He never had rheumatism, syphilis, nor any of the specific fevers; but, in short, had always enjoyed perfect health. I said that his work must be very heavy, but he informed me that he did not consider it so, and as proof that he did not over-exert himself, he told me that he was in the service of the Corporation. On inquiry into the nature of his work, I found that it was heavy, though irregular.

I might draw an analogy between over-work, and granular kidney, as far as their effects on the heart are concerned. In both cases there is a peripheral obstruction which calls forth an increased effort on the part of the left ventricle, and that is met by the inherent power of growth in the cardiac fibre, and thus equilibrium is for a time maintained. But this impediment in front, and the great *vis a tergo,* mean high arterial tension, with at length all its consequences. As it is the systole of the aorta which propels the blood through the coronary arteries, so the heart will be well supplied as long as the structural integrity of that vessel is maintained; but prolonged high tension means straining of the aortic coats, endo-arteritis, with atheroma, and consequent loss of elasticity, and hence the blood is not driven through the coronary vessels with its wonted force. Besides, the nutrient vessels themselves may undergo atheromatous changes, and thus there is another cause depriving the heart of an ample supply of blood to nourish its enlarged muscle; hence failure in the compensatory hypertrophy, with increased dilatation, takes place. Again, the semilunar valves may be affected with atheroma, and either gradually or suddenly become incompetent. Then there is a new force dilating the ventricle during systole, which is met by increased muscular growth; but as the heart is not properly nourished during the diastolic period, the compensation is sure, sooner or later, to fail. Now, perhaps, the mitral orifice is dilated, and the valves incompetent to close it; but, at any rate, the lungs are passively loaded, the right ventricle becomes dilated, and also the tricuspid orifice.

From the foregoing, although it has been shown that the left side is the primarily diseased, it does not necessarily follow that the right ventricle remains the small and thin-walled cavity which we find it to be in persons of sedentary habits. With the increased amount of blood in the body, and the greater demand for it in the system, the right side has its own part to play, and grows in proportion to the extra work it has to perform. In these cases the system requires an ample quantity of oxydized blood, which the right ventricle easily supplies through the capacious lungs. Their dress in no way hinders the free expansion of the chest, and consequently there is no more extra obstruction to the pulmonary flow than that occasionally caused by the fixture of the chest during a more than ordinary effort, which is easily met by slight hypertrophy of the right ventricle.

Fixture of the chest in expiration affects not merely the right ventricle, but also the left, as it is well known that arterial tension rises during that condition. It is when the chest is fixed in this state that great muscular exertion, such as that of lifting heavy weights, occasionally gives rise to rupture of the aortic valves. In inspiration the arterial tension falls; hence, in this state the effect of muscular exertion on the aorta and left ventricle is to a certain

extent counterbalanced. I do not know an instance, nor do I recollect having read of a case of sudden rupture of the aortic valves from muscular strain, arising under conditions where the chest would be fully expanded. I do not say that such a thing is impossible, but I say that inspiration has a conservative influence over the aortic valves.

In this class of cases which I have been describing, the over-exertion tells first on the left ventricle and systemic arteries, and in the third case which I have here recorded, the whole of Dr Allbutt's morbid changes are present, but their order of occurrence is not that pointed out by him.

I do not wish to dispute Dr Allbutt's sequence, but I wish to point out that there are cases where the chronic morbid changes arise in the following order:—1st, Hypertrophy, or hypertrophy with dilatation of the left ventricle and a slight increase in growth and in capacity of the right ventricle to meet the greater requirements of the system. This condition is associated with high arterial tension, increased aortic recoil, with greater supply of blood to the heart. 2d, Chronic inflammation of, and atheromatous changes in, the aorta and aortic valves, and frequently also in the coronary arteries. 3d, Loss of elasticity and dilatation of the aorta, consequently the blood is not propelled through the coronary arteries with its former momentum, nutrition fails, and dilatation of one or both sides of the heart takes place. 4th, Incompetence of the aortic valves, with reflux of blood during diastole, which tends to produce still greater dilatation of the left ventricle. 5th, This extra strain is met by further compensatory hypertrophy. 6th, Failure in the compensation, owing to defective nutrition, with still greater enlargement of the left ventricle, and perhaps also of the right. 7th, Overloading of the pulmonary circuit, with or without incompetence of the mitral valves. 8th, Additional distension of the right ventricle; and, 9th, Dilatation of the tricuspid orifice.

Article VI.—*Stirling District Lunacy Notes.* By James Maclaren, L.R.C.S.E., Medical Superintendent, Stirling District Asylum, Larbert.

NO. I.—A CASE OF CHILD-MURDER.

For the care of their insane poor the counties of Stirling, Dumbarton, Clackmannan, and Linlithgow, formed themselves into what is known as the Stirling District; and paupers found chargeable to parishes in any of these counties, and duly proved to be persons of unsound mind and proper subjects for care and treatment in an asylum, are sent to the institution known popularly as the Larbert Asylum, and officially as the Stirling District Asylum. When

first projected, it was considered, from the basis afforded by official statistics, that accommodation for two hundred patients would meet the requirements of the district. The asylum was not long opened, however, before it was found that for some reason or other the demands on its space were much beyond the original estimate. Increased lunacy in the district, spread of intelligence among the masses, and consequent appreciation of the benefits of asylum treatment, are among the alleged reasons; but whatever the cause, the fact remains that, within ten years at most, the number of the certified insane have increased from 200 to over 250. If I am not mistaken, a similar experience has been noted after the erection of many of the district asylums. The classes from which the inmates here are drawn are very various—seafaring, agricultural, mining, manufacturing. Into the large questions of the cause and spread of insanity in each of these, I hope to enter in future papers. Stopping short of this, however, it can easily be imagined that many interesting individual cases occur. One of these is told in the following account of a case of child-murder:—

Mrs Smith or Hunter, aged 32, was a decent, sober, hard-working woman, fond of her husband and of her children. She married eleven years ago, and had in all seven children, three of whom died in infancy. After the birth of her second child, eight years ago, she had what seems to have been an attack of puerperal fever, from which she recovered in a month. After this she continued well till two months before the occurrence soon to be mentioned. At this time she became sleepless, restless; refused her food; wished to get out of her house in the middle of the night; became thin and haggard. As weeks passed, she had intense "nervousness," great depression, and frequent fits of crying. Her own expression was that the nervousness came on her like a fit. At this time, she seems to have been the subject of simple uncontrollable impulse. In the *Medical Times and Gazette*, in January last, I described a case in which wild, impulsive acts, most bitterly regretted and earnestly striven against, were the leading symptoms of what there was little doubt was organic brain disease. Absence of delusions and of much of the general character of insanity, except as regards the impulsive acts, was a marked feature in that case; and it seems to have been so in Mrs Smith's. A neighbour's evidence is strong on this point. "I went into her house one forenoon, and she came running to me from where the cradle was, and caught me by the shoulders and said, 'Oh, Annie! God has sent you to save my Lydia,' and then she cried bitterly." On this occasion, this neighbour ran to the cradle where the child was lying, and distinctly saw finger-marks on its throat; froth was coming out of its mouth, and it was blue in the face.

On the following day (8th August), her husband left the house very early to go to his work. About 7 A.M., Mrs Hunter ran into the same neighbour's house, wringing her hands, and crying, and

called to her neighbour to come away in, as she thought Lydia was dying. Mrs T. ran to the house and found the child lying on a bed, and took it up, and saw that it was dead. Mrs Hunter was in great distress, weeping bitterly, and calling out, "Oh, Annie! I have killed my Lydia." Mrs T. asked her if she had meddled the bairn again, and she said she had not meddled Lydia, but had lifted one of the other children and thrown her down on the bed beside Lydia; and she adhered to this account of the matter afterwards.

She was tried at Stirling, and the following condensed account of the trial tells all that is required under that head. It would, however, be unjust to pass it by, without calling attention to the wise and enlightened spirit that dictated the merciful judgment.

"Jane Smith, from the prison of Stirling, was charged with the crime of murder or culpable homicide, in so far as, on the 8th August 1876, in her house at West Mains, Bothkennar, she did attack and assault Lydia Inglis Hunter, a child about seven months old, and strike her one or more blows on the head with her fist or some hard instrument, or did strike her head against the floor, whereby she was mortally injured; or did lift from the floor her daughter, Elizabeth Hunter, a child of two years of age, and with great force and violence throw her upon a bed in which the said Lydia Inglis Hunter was lying, against her head, whereby she was mortally injured, and so culpably bereaved of life.

"The accused pleaded guilty to culpable homicide through her agent, Mr Baxter. This plea was accepted, and the exculpatory evidence was led to show that the panel had since the birth of the child now deceased been subject to nervous fits, sleeplessness, and weakness. Her mother said she occasionally fell on the floor in fits. She had been married about eleven years, and had borne seven of a family.

"At the suggestion of Lord Deas, who was of opinion that, considering the state of the prisoner's body and mind, it would be detrimental to imprison her, the prosecutor withdrew his motion for sentence, and she was sent away in charge of her mother."

Now, passing over much that would be but wearisome detail, we get to her state on admission into the asylum, which took place a few days after the trial.

Entire horror of her crime seemed to possess her mind. In no patient I ever saw was a look of utter despair so stamped on the face. Among all the varied types that fill an asylum ward, hers was the face that invariably attracted attention, and provoked inquiry. A mental state beyond all rousing, an entire listlessness of body; in fact, if the term could be disassociated from weakness (for she was not weak), perfect prostration was her condition in mind and body. In fact, her state was such as might be imagined in one who had a full appreciation of the terrible act she had been guilty of. This is one of the features that sepa-

rates many of these "impulsive" cases from the other varieties of insanity. Seldom if ever is there anything beyond mild depression (perhaps only the result of enfeeblement) in the victim of the ordinary acute varieties of insanity, once the attack has passed. In this variety, however, of which this poor woman and the other case I have mentioned are types, there is bitter regret, and deep remorse for the act.

As to her physical state, the most noticeable feature was intense hyperæsthesia, confined to no one limb or no region. With this, her temperature, which varied considerably, never rose above 98·4°. Over the two upper dorsal vertebræ there was great pain on percussion, but no displacement or other evidence of spinal disease. Pupils were equal and sensitive; reflex action somewhat dulled. Twice she fell down and remained more than an hour unconscious, but without convulsion; her eyes wide open, and pupils dilated. From this state she gradually recovered, as from a fainting fit. There is no heredity in her case, and no history of syphilis. The organs I have not detailed are fairly healthy to the ordinary tests.

The foregoing state of matters continued for weeks, and the poor woman showed no signs of improvement. In spite of much care taken to prevent it, her story oozed out, and it was a singular study to notice the consequent aversion from her of her insane companions. At first her state was such as evoked the womanly sympathy that is to be found even in an asylum ward; but once her story was known, she lost this, her isolation became complete, and she lived on, eating and drinking, as it appeared mechanically, doing what she was told to the best of her ability, but without the slightest show of interest, altogether a sad and solitary figure amid her strange surroundings.

In the fear that she might make an attempt at suicide, she was carefully and systematically watched; but, as is well known to all asylum officers, the best planned precautions in this direction are limited by the amount of training and intelligence possessed by the attendants to whom the duty is assigned. In this case the utmost vigilance on the part of all concerned was exercised day and night, for some time, until a momentary act of forgetfulness on the part of an attendant gave the patient the opportunity she had doubtless been longing and unceasingly watching for.

One night a patient, going into a room on the second storey in the dark, felt the cold air blowing on her from the open window, and heard a voice calling for help; she ran to the window, and found fingers clinging to the outside sill. She caught these, and held on to them as long as her strength allowed, and cried for help, but the part of the house was deserted for the time, and none came. At last she had to let go, and in the dark heard the body fall first on to a sloping roof and then to the ground. She now gave the alarm more thoroughly, and Mrs Hunter was found lying

beneath the open window, bleeding and insensible. She had fallen on the back of her head, on which were two long jagged wounds reaching to the bone, which was bare. The scalp, too, was loosened from the greater part of the back of the head. She, strange to say, in spite of the double fall, had not another bruise. For six hours she remained insensible, cold, almost pulseless, breathing very slowly and quietly, and with her eyes wide open and the pupils dilated. An enema of hot strong coffee and brandy was administered, but, with this exception, I made no effort to rouse her. Evidently she laboured under most severe shock. Anything in the shape of external stimulus could only have done harm by making an additional call on the already almost exhausted vital energy. A temporary rousing might indeed have ensued, but it would certainly have been followed by increased prostration. In her case, increased prostration would have been death. At the end of six hours, during which she had been kept warm and quiet, she gradually and by slow degrees recovered consciousness. At first a slight cough or moan was all the sign she gave, and then relapsed; but soon each interval proved longer, till she might be said to have fairly recovered consciousness.

For days she was very weak, and spoke to no one, but from the first I noticed that the fixed, horror-stricken look was gone. Gradually, as she gained strength, her spirits returned. The nervousness and hyperæsthesia reappeared only for a few days after the accident. The dorsal pain did so, too, but in less degree than before. None of these, however, had the intensity that they possessed before the injury to the head, and they one and all are now gone. The scalp wound healed rapidly and kindly under simple dressings. She has gained weight, looks well, and makes no complaint of any kind. But the strangest change of all is in her mental condition. The depression is completely gone, and replaced by a quiet, steady cheerfulness. She has had no epileptiform seizure, and indeed to all appearance is cured in body and mind.

It is impossible to apportion to the head injury and shock their exact share in these results. It is, however, difficult to believe that they did not contribute largely to the change which happily took place.

Article VII.—*Condylomatous Excrescences of the Anus treated by Escharotics.* By G. R. Gilruth, L.R.C.S. Edin.

Condylomatous excrescences of the anus generally give rise to much acute pain—the hard variety, however, being less irritable than the soft—and usually occur in conjunction with ulcers on the penis.

A coppery or pink eruption is often found at the same time on

the breast and abdomen, and the throat may also be affected: which symptoms go to prove that they are a local manifestation of a syphilitic state.

The skin seems to be the part from which they spring, but the older surgical authorities state that they may reach even to the anal muscles.

Those nearest the anus have a red, vascular appearance, although not containing much blood; present much diversity in shape, and are generally covered with a thin secretion.

In some cases, because of their broad base and nearness to the anus, it will be found more convenient, instead of using the knife or scissors, to effect their removal by escharotics.

Many escharotics have been recommended, but after the excrescences have been touched once or twice with the nitrate of silver the most potent seems to be nitric acid. This acid, with the exception, perhaps, of the first application, does not cause great pain, and by using oils, protection can be given to the healthy skin. Likewise, any irritation may be allayed, and the raw surfaces prevented from rubbing against each other, by applying cotton-wool soaked in black-wash, with guttapercha tissue over it, and then securing this dressing by a handkerchief passed between the hips and fastened in front and behind. The acid seems to act not so much by destruction of tissue, as by causing dispersion of fluid.

The following case will be given to exemplify this mode of treatment:—

M. B., a young gentleman, called on the 14th July 1875, on account of some growths about the anus.

When the hips were held apart, a very disgusting appearance presented itself. The skin on each side of the anus was raised into red, raw-looking, damp ridges, whilst a number of smaller condylomata were found scattered over the nates. These excrescences had existed, he said, for about three months, and had resisted an application which he had been ordered by a medical gentleman to apply. He suffered much pain, could hardly sleep at night, and during the day sat with difficulty. On his penis were several soft chancres, and on various parts of his body a pinkish rash.

The excrescences were touched during the first few days with nitrate of silver, and after the skin was smeared with oil, nitric acid, by means of a rod, was applied every second day; cotton-wool soaked in black-wash being placed between the buttocks, and retained there by a bandage, and used as a dressing.

21*st July*.—Much reduced in size, being almost level with the sound skin.

29*th July*.—With the exception of the merest vestige of one, the others had vanished, and the skin which corresponded to the situation of the excrescences had resumed its natural appearance.

The chancres were treated locally, and soon healed, whilst the

rash was got rid of by small doses of the hydr. cum creta, followed by the iodide of potassium.

7th August.—The patient, being at the coast, wrote and said he was enjoying good health.

Article VIII.—*Salicine as an Antipyretic.* By John A. Erskine Stuart, L.R.C.S. Edin.

Salicine is a substance which for a long period of years has been regarded as an antiperiodic and tonic, and it has consequently been used considerably in the treatment of intermittents and diseases of a neuralgic nature, where there is a tendency to plethora or congestion and head symptoms, as it has the advantage over quinine in not producing ringing in the ears and the other symptoms due to a full dose of that drug.[1]

Of late, however, this drug has been extensively used in the treatment of rheumatic fever, and we have it on the testimony of several observers, but especially of Dr Maclagan of Dundee, that it acts quite as efficaciously in this disease as its near relation salicylic acid, and besides has the advantage of being easily administered.[2] Dr Maclagan is of opinion that it is split into some substance in the system which possesses powerful antiseptic properties, and we have it asserted by Senator, Ranke and Lehmann, and Millon, that it is converted into salicylic acid in the blood. Whatever substance is formed in the blood, I have proved to my own satisfaction, by two experiments, that salicine in solution has almost no power in arresting the putrefaction of urine, while if it is taken internally in even a small dose, it gives the urine a power of resisting putrefaction for a considerable period. I find that a solution of five grains of salicine in half an ounce of water introduced into one ounce and a half of fresh urine only preserves that fluid for half a day longer than the time at which urine left to itself in similar circumstances went putrid. However, urine passed one hour after taking a dose of ten grains of salicine kept fresh and clear for five days. Salicine is excreted in the urine as salicyl hydride, easily detected by the purple red colour produced on adding perchloride of iron.

In conclusion, I may state that neither quinine nor bebeerine possess antiseptic properties worth mentioning when added to urine, but it may be that their powerful antipyretic effects are due to their transformation into some antiseptic substance in the blood.

[1] Waring's Therapeutics, p. 636.

[2] Treatment of Rheumatism by Salicine and Salicylic Acid, by T. Maclagan, M.D., British Medical Journal, 20th May 1876.

ARTICLE IX.—*On the Human Voice.* By C. RUMNEY ILLINGWORTH, late Assistant-Demonstrator of Anatomy, University of Edinburgh.

VARIOUS theories of the falsetto voice have been advanced. The one I have put forward is the following:—That the cavity of the larynx, bounded below by the true vocal cords, and above by the false, and extending on each side up into the laryngeal sacculi, is used in the production of the falsetto voice, in the same way as the mouth is used in whistling, or as a hazel or other nut, when the kernel has been extracted, through a small hole in the shell. In whistling with expiration, a cavity is formed by the tongue, lips, and cheeks, proportionate to the pitch of the note to be emitted, and air enters this cavity between the tongue and the roof of the mouth. The aperture between the approximated lips allows the air to escape, but does not interfere with the production of the sound. In whistling with inspiration, the orifices are reversed in function, but the cavity is used in the same way precisely.

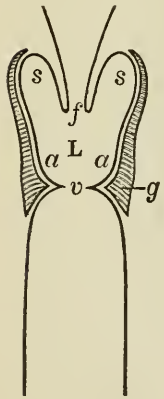

DIAGRAM OF A VERTICAL SECTION OF THE LARYNX.
L. Laryngeal cavity.
v. True vocal cords.
f. False vocal cords.
a. Ventricle.
s. Saccule.
g. Sphincter glottidis.

In the laryngeal cavity above described, the rima glottidis corresponds to the entrance to the cavity of the mouth, between the tongue and the arch of the palate; and the aperture between the false vocal cords to that between the approximated lips. The size of the cavity is, of course, regulated by the sphincter glottidis, which extends from the margins of the aryteno-epiglottidean folds to the upper border of the cricoid cartilage, and embraces the arytenoid cartilages posteriorly.

In support of my view, I adduce the following facts:—

1. The shape and relations of the "laryngeal cavity." Placed on the summit of the air-tube, with its entrance guarded by the true vocal cords, a blast of air can readily be directed into it, whilst its blind lateral extensions (the sacculi), by catching the blast, and preventing its too ready egress, will materially aid in the production of the sound.

2. In emitting a falsetto note, the sensation produced by its emission is referable to a point higher in the larynx than that produced by the emission of a true note; and, in trying to get a lower falsetto note than one has the power of getting, the blast of air may be felt at will to act at a point lower in the larynx when a true note is emitted by the vibration of the vocal cords in the cavity of the larynx.

By the passage of the blast of air between the approximated true

vocal cords, a vibration of their fine free edges is produced, comparable to the trembling of leaves in a breeze, which is regarded by the majority of physiologists as the means whereby the falsetto voice is produced.

But it is not with the falsetto voice alone that this cavity has to do; acting in the way I have mentioned, its function, in connexion with the true or chest voice, is, I think, more important than that of the true vocal cords, because, by its size, as regulated by the sphincter, the pitch of the notes is determined, a longer or shorter portion of the vocal cords vibrating in unison with the notes produced in the cavity, according as they are low or high, and a greater or less width, according as the tone is *forte* or *piano*. Hitherto, physiologists, in their experiments with the human larynx, have acted upon the true vocal cords alone, in the belief that they were the sole agents in the production of the voice; but the results have been poor in the extreme. To set in action the cavity, of which the vocal cords are but the gates, will require a nicety of adjustment, and precision of blast direction, very difficult, if not impossible, to attain.

I believe, then, that the true voice (so-called) is an impure falsetto. This I think is shown by passing from the falsetto voice softly into the true, on any note where the two registers overlap, and then increasing the tone to *forte*, when it will be perceived that there is a gradual roughening of the *pure* voice sound, by bringing first the edges of the vocal cords into action (in *piano*), and finally the whole breadth (in *forte*).

(*To be continued.*)

Part Second.

REVIEWS.

Clinical Studies; illustrated by Cases observed in Hospital and Private Practice. By Sir JOHN ROSE CORMACK, K.B., F.R.S.E., M.D. Edin., M.D. Paris; Chevalier of the Legion of Honour, Physician to the Hertford British Hospital of Paris, Fellow of the Royal College of Physicians of London, formerly Physician to the Royal Infirmary and Fever Hospitals of Edinburgh, etc., etc. London: J. and A. Churchill. Paris: The Galignani Library: 1876.

THIS is a handsome book, in two volumes, extending respectively to 548 and 579 pages; but in spite of its size we have read it carefully from beginning to end, with unabated interest and satisfaction. It is in every respect a good book; and we say this without

hesitation at the outset of our review, that the reader may accompany us in a cordial manner, knowing, as we do, that in these high-pressure days everything with even the semblance of tediousness is perused in a cursory manner. We use the adjective *good*, in reference to these "Clinical Studies," for several reasons. They indicate remarkable honesty, care, and accuracy of observation; the facts being, as a rule, fully noted at the bedside of the patient, and given so much in detail, irrespective of preconceived opinions or ideas, that they can be confidently accepted by the reader, and will remain available for all time coming. In short, Sir John proceeds throughout on the principle of making the *natural history* of each disease or individual case as full and reliable as possible. He has no patience for the hurtful tendency, often manifested, of giving prominence to some facts and keeping others in the background, with the inevitable result of perpetuating error, and missing truths which might otherwise be discovered. In this feature of his writings, he shows himself a worthy disciple of Abercrombie and Alison, and an emulator of his distinguished contemporary and friend John Reid, of whom the Edinburgh School is so justly proud. And it is pleasant and refreshing to find, that this important principle, recognised in the earliest of his papers—"Relapsing Fever, as seen in the Epidemic of 1843"—runs through the long period of thirty-three years, and shows itself, paramount as ever, in his contribution of 1876, to the literature of "General Paralysis and Insanity."

It is a good book, also, because the author is evidently an enthusiast in his profession; spares himself neither trouble nor fatigue, by day or by night; believes in the efficacy of well-considered therapeutics, and grounds these on the sure foundations of anatomy, physiology, and pathology. *Nostrums* he has none; but every case is carefully studied and treated, in the light of experience and rational analogy. Nothing is done without an adequate reason, and the logical faculty of the reader never feels dissatisfied or wronged. The language employed is invariably clear, accurate, and suited to the subject, with unmistakable indications that the writer is a man of education and culture, who can express himself distinctly and in perfect good taste. His cases are admirably related, and generally have gleams of human interest lighting up the details, which remind one of Pott, Abernethy, Hey, Latham, and others, whose pages contrast, not unfavourably, with those of a later, but less racy generation. The book deserves the appellation good, for another reason, almost, but not necessarily, implied in what we have already said. You cannot read it as it ought to be read, without having your faculties stimulated, and your previous knowledge both enlarged and confirmed. You are pleasantly drawn, before you are aware, into the presence of questions which, if not new, are invested with a new and fresh interest, and the answers to which lead to others rising up on every side. In short,

we have to do with a *suggestive* book, which ought always to refresh and exhilarate the mind, of those especially who, after many years of professional life, feel a growing tendency to plod along in the ruts of a narrow routine. But here we have a sexagenarian contemplating all his cases with the avidity and quickness of early manhood, backed up by the knowledge and varied experience of an active professional life. We may remind our readers that Sir John Rose Cormack, after a very distinguished but short career in Edinburgh as a student and rising physician —during which, however, he had time to plan and institute the *Monthly Medical Journal*—practised for many years at Putney, in the neighbourhood of London, and eventually settled as a consultant in the French metropolis. There, as every one knows, he, previously a physician, was led by force of providential circumstances, during the two sieges of Paris in 1870 and 1871, to try his hand at surgery on an extensive scale. An interesting case of resection of the shoulder-joint, published in these volumes, is a specimen of what a man educated all round, so to speak, may accomplish when called unexpectedly to such unwonted trials of his knowledge and courage. Few men have more thoroughly deserved the social rank conferred on him by Her Majesty Queen Victoria, than he did by his self-denying labours in the *Ambulance Anglaise* and the Hertford English Hospital during that period of fiery trial.

With these introductory remarks, we shall now proceed to inform our readers in regard to some of the principal contents of the book. The first paper is a reprint of a Treatise (published at the time) on the Epidemic Fever which prevailed in Edinburgh and other towns in 1843. It may still be studied with great advantage, and is probably the best account of the relapsing fever which has yet appeared. It gave a faithful portraiture of the disease as it appeared originally, and before some confusion was created, towards the close of the epidemic, by the occurrence of the ordinary typhus, with its characteristic eruption, among convalescents from the expiring epidemic of the "relapsing" fever. Dr Cormack had said "the rosy elliptical eruption is absent in *almost* every case in the present epidemic." But the word almost was uncalled for, as subsequent experience led him to give in his adhesion unreservedly to the doctrine first proclaimed by his friend and contemporary, Professor Henderson, that the fevers were the products of different morbid poisons. We cannot, however, enter into details. The account given by the author will, as we have already said, amply repay perusal. It was written during the epidemic, and while it was at its *median intensity;* while another writer, Dr Wardell, who published his work long after Dr Cormack's, saw the epidemic in its *decline*, and therefore under circumstances somewhat altered; so that it is unfair in later compilers on the subject to associate the two men and to pit the one against the other. They were both true historians of what they saw, and their descriptions are not

contradictory when thus explained. The monograph of our author was the result of an enormous amount of work, clinical and literary, in a brief space of time, which he was enabled to achieve in consequence of the close proximity of his Fever Hospital to the library of the Royal Medical Society. He spent twelve hours a day, for many weeks, between the wards, the autopsy theatre, and the library, and so produced a book which represents an unusual amount of hard and honest work. But what called for so much haste to publish? His appointment as Physician to the Royal Infirmary, which involved resignation of the Fever Hospital, and a consequent narrowing of his field of observation.

Before leaving this subject, we may refer to an appearance of some interest in the epidemic fever, viz., a broad purplish or brownish line extending from the umbilicus to the symphysis pubis in a certain number of the patients. Dr Turner of Keith had described this appearance shortly before in the *Edinburgh Monthly Medical Journal*, as a medico legal test of recent delivery; and his friend Cormack, the editor, naturally looked for it in those female patients who happened to *abort* (a common occurrence in the relapsing fever) under his care. It was found more or less distinct in most of them; but it was found also in other cases, male as well as female. This, of course, diminished very much its value as a medico-legal test of recent delivery. Dr Turner admits this; but, in an interesting recent letter (1874) to Sir John, published in volume i. p. 505, makes the following observation, which is worthy of notice, as a help to diagnosis in another direction: "As mentioned in my *second* communication on this subject in the Journal, I had then—as I have had since—met with the line in various conditions of disease in both sexes; but in no instance of this kind, up to the present time, have I found it of what may be termed *puerperal* intensity. In these circumstances, it now and then does me good service. For example, at the outset of infantile remittent fever, where the diagnosis from incipient acute hydrocephalus is confessedly often difficult, I have always, on discovering *the line*, however faintly marked, pronounced for the existenee of the former affection, and I do not remember a single occasion on which I have thereby been misled."

Several excellent papers on Cholera next claim attention. 1. "Notes on the Pathology and Treatment of Cholera (1853)." 2. "Speech on Cholera, at the Westminster Medical Society (1849)." 3. "Choleraic Collapse: how some recoveries take place."

The following sentences show the spirit in which the author approaches his subject:—"Cherishing, as I do, a strong faith in the efficacy of many of the curative means employed in practice, I equally hold that one of the best ways of learning the skilful use of these means, is patiently to watch and study the phenomena of spontaneous recoveries. It is a species of investigation which is replete with benefits to all concerned. By pursuing it, the prac-

titioner obtains and secures for himself a stock of knowledge which neither the theorist of the closet nor the empiric of the day can ever wrench from him or deteriorate, and which will impart to his practice an amount of well-founded self-confidence and success which could in no other way be obtained." After describing the sanitary condition of the district (Putney, etc.) where his original observation of cholera was mainly conducted, he enumerates, under three heads, as many groups of cases which happened simultaneously, and were evidently dependent on local causes. *First group*—*Quotidian* fever, or febricula, with diarrhœa, which was not at first serous. Hepatic, splenic, and gastro-enteric symptoms were in some cases prominent, and in others absent. Cases of this group may be called *epidemic diarrhœa*. *Second group*, similar to the first group, except that the purging was always serous, and that the type was either remittent or irregularly intermittent. The secretion of urine was scanty or absent. Cases of this group may be called *cholerine*. *Third group*—The severer cases of the second group passed by insensible gradations into the third; the distinction between the aggravated cases of the one and the milder cases of the other being purely arbitrary, and one of degree. The cold stage was sudden and protracted, and passed into collapse. This we term cholera."

He agrees with Dr Billing and other writers that cholera is pathologically of the same family as intermittent fever—that it is, in fact, a pernicious ague; and he is thoroughly satisfied that an intimate relationship exists between fevers (including cholera) and neuralgia. He shows that cholera is not a new disease; that periodicity has been long recognised as one of its essential characters, and that its treatment by anti-periodic remedies is of equal antiquity. And he adopts the following conclusions, after a review of facts and analogies :—

"1. Cholera is a fever, intimately related to those fevers which depend on malaria.

2. The intermittent or remittent type can be generally recognised in the milder, and also not unfrequently (though less distinctly) in the severer cases.

3. The stage of collapse ought to be considered as an aggravated cold stage of the paroxysm of a pernicious fever, which may spontaneously terminate in death or reaction.

4. The least dense portion of the blood has an excessive tendency to exude through the capillaries of the stomach and bowels, and pass from the body by vomit and stool.

5. The inspissated residual blood, being unable to pass through the small pulmonary vessels, causes congestion of the lungs; and, as speedy consequences of this condition, paralysis of the right side of the heart from over-distension, asphyxia, and other subordinate derangements of the vital functions.

6. Death may take place from—

a. Asphyxia.

b. Necræmia, *with* loss of the least dense portion of the blood by stool and vomit.

c. Necræmia, *without* such loss of the least dense portion of the blood as can be discovered during life, the exudation remaining within the stomach and intestines.

d. Toxæmia, from absence or deficiency of sanguineous depuration.

e. Inflammation of lungs or other organs supervening in convalescence.

f. Debility.

q. Gastro-enteritis.

h. Two or more of the above causes combined.

7. The anatomical lesions found on dissection vary with the duration of the illness, the cause of death, and the circumstances which attend it." Limited space forbids our enlarging on the treatment recommended. Two remarks seem very important. "Enormous doses of opium, calomel, and other powerful drugs, have been given to cholera patients; and there can be no doubt that such substances, when introduced into the system *when in a state of collapse*, are not likely to produce any very suddenly appalling effects. Indeed, in a vast number of cases, they seem to lie as quietly in the stomach of the cold cholera patient, and to produce as little effect, as if they were deposited in a glass bottle. Should the patient, however, emerge from the state of collapse, he runs almost as great a risk from the poisonous doses of these drugs, which have been placed in his interior, as he has just escaped by recovery from the pestilence." "The importance of arresting the serous discharge, and of maintaining the warmth of the body by the application of heat externally, cannot be over-estimated. Other therapeutic measures may be regarded as liable to considerable variety according to circumstances, and as being valuable and auxiliary rather than always indispensable. The prompt arrest of the serous discharge by creosote, sulphuric acid, or some other remedy, has undoubtedly saved innumerable lives; and from amid the chaos of contradiction, depreciation, and laudation, in which the merits of special modes of treating cholera are involved, the diligent application of warmth to the surface may be extricated *as the measure of universally admitted value.*"

A number of interesting papers occupy the remainder of the first volume, which we advise our readers to study with care. That entitled "Puerperal Convulsions" is full of valuable matter, as the divisions will indicate. 1. "Puerperal convulsions: their frequent dependence on toxæmia: explanation of the more frequent occurrence of renal convulsions in primiparæ. 2. Note: Dr Tyler Smith on Puerperal Convulsions. 3. Relations and differences between epilepsy and puerperal convulsions."

"Infantile Remittent Fever," in connexion with hydrocephalus and urea in the blood, is treated in a very enlightened and suggest-

ive manner. The volume concludes with an interesting and learned *résumé* of what is known regarding hernia of the uterus, both in its natural and gravid condition, illustrated by drawings.

The second volume commences with a series of very interesting papers on "Air in the Organs of Circulation." The earliest of these is a reprint of the author's Gold Medal Thesis in Edinburgh in the year 1837. It is an able and elaborate discussion of the subject, with well-devised experiments on the horse and other animals, which clear up the discordant views of previous writers. It was the product of very hard, conscientious work, and deserves to be widely known. The second consists of "Remarks on a Case of Suicide," in which death was ascribed, as Dr Cormack thought erroneously, to air in the organs of circulation. The subject receives fresh illumination in this able criticism. The third is very remarkable, from the circumstance that it details a case of death from the entrance of air by a rigid vein in the neck opened accidentally by a seton-needle. It was carefully studied during life, and after death, and minutely recorded by the author himself, so that he was enabled to observe in the human subject various interesting points which he had so elaborately investigated in the lower animals many years before. The case is one of great value, and complete in its history. It happened in 1848, as might be inferred from the following reference to a distinguished countryman who, that year, passed through a curious episode in his career, having left Edinburgh with the intention of making London his permanent home. "We now sent to London for Mr Syme, who was with us about noon. He found us applying, at intervals, warmth to the feet, dashing cold water on the face, and giving stimulants. The patient was in a more hopeful state as Mr Syme entered than he had yet been. Mr Syme entirely concurred in the view we had taken of the nature of the case and of our treatment.'

"It may be stated as a conclusion from this case, from numerous other cases, and also from experiments on animals, that if the first shock of the accident be got over, *the degree of subsequent immediate danger is in proportion to the amount of obstruction to the passage of the blood through the lungs.*" Of course it is the rapid distension of the right auricle with a mixture of air and blood, and its inability to contract on its elastic contents, as Dr Cormack shows, which prevents the blood from getting to the lungs.

The fourth paper is entitled, "Entrance of Air by the Open Mouths of the Uterine Veins considered as a Cause of Danger and Death after Parturition." It is dated 1850.

The fifth consists of extracts from his Graduation Thesis at Paris, defended on the 4th August 1870. It is written in French, and contains some additional facts and remarks not to be found in the previous papers: "1. Right side of Heart distended by Air entering Occipital Sinus. 2. Anatomical peculiarities of the Uterine Veins immediately or soon after Delivery. 3. The same Conditions

which favour the Introduction of Air into the Circulation by the Uterine Veins after Delivery tend also to favour the production of Embolism. 4. Treatment." The whole subject of air in the organs of circulation is admirably treated in this series of papers, and Sir John Rose Cormack's name must be permanently associated with it.

The next paper is valuable. It is entitled "Reflex Convulsions of Infancy," and is illustrated by a very interesting case in which a child was restored from a state of apparent death by the hypodermic injection of morphia. Under the conviction that "the convulsions and suspension of the necessary motions of respiration depended upon intestinal tickling of lumbrici," Sir John used the above remedy with the view of obtunding nervous susceptibility, while it was immediately preceded by a powerful turpentine enema. This latter remedy, by exciting the intestinal tract of the pneumogastric nerve, was expected to lead to respiratory muscular movement, and possibly expulsion of the supposed offending lumbrici. In less than three minutes after the hypodermic injection, there was a gentle heaving of the thoracic walls—a natural play of the diaphragm and abdominal muscles. Lumbrici were expelled eventually, and a perfect recovery took place. The whole quantity of hydrochlorate of morphia injected was, on two occasions, $\frac{1}{5}$th of a grain—a large quantity in a child of seven years; but "if this mode can be formulated for safe use in the treatment of convulsions in children, it is obviously preferable (to either of the ordinary modes) on account of its much greater certainty and rapidity of effect." The case referred to affords a typical specimen of Sir John Cormack's careful and intelligent observation and treatment of disease. It is followed by a paper on "Infantile Glotto-laryngeal Spasm: its Nature, Causes, Complications, Sequelæ, and Treatment." The following quotations show the views entertained by our author in regard to laryngismus stridulus or false croup (of which the paper treats), laryngitis, and diphtheria:—"In a pure and typical case of laryngismus stridulus there is no laryngitis; but it is also true that there exist a vast number of cases of slight laryngitis in which the inflammatory element need hardly be taken into account in the treatment, and in which the nervous element is everything." "When the inflammatory element predominates, our treatment for inflammation must also predominate." "Many years ago, when attending out-patients as a pupil under the supervision of the physicians of the Royal Dispensary of Edinburgh, I well remember treating several cases of this kind, under the instruction of my masters. The two principal measures adopted were leeching and purging. When recovery took place in one or two very bad cases, I was led to believe that the recovery was due to the active treatment which had been adopted—a belief which was probably correct. I was also told by my instructors that unless active antiphlogistic measures were employed, the case would

advance to the generally fatal membranous stage, in which cacoplastic false membrane forms in the larynx and trachea, and sometimes descends into the bronchial tubes. I have now fortunately learned from Brettoneau and Trousseau, that 'membranous croup' is not an advanced stage of 'inflammatory croup,' but the characteristic manifestation of diphtheria, a general disease *sui generis*, in which antiphlogistic measures are exceedingly prejudicial. There is no one disease to which the name of 'croup' can be rationally applied. It is a name under which are ranged diseases essentially different from each other, and it is in reality only intelligible *when used as the name of a symptom—as the synonym of stridulous breathing.*"

The next paper goes fully into the subject of "Pharyngo-Laryngo-Tracheal Diphtheria," founded on a typical case, remarkably well told, in which life was saved by the operation of tracheotomy, or, to use his own words, "death averted by tracheotomy, which was imperatively demanded by the almost total exclusion of air from the lungs by the laryngo-tracheal manifestation of the disease. Tracheotomy saved the child, but did not cure his diphtheria; it enabled him to breathe—to live—whilst nature, judiciously and assiduously assisted by art, accomplished a cure. Such a case affords an excellent foundation for a clinical study of diphtheria." We shall not follow the author in his exposition, as it appeared at length in our pages a few months ago, but content ourselves with some short quotations worthy of being emphasized. "I have seen a catarrhal affection of the throat, the result of exposure to cold, become the starting point of pharyngo-laryngo-tracheal diphtheria. . . . The diphtheria comes in a sense from the catarrh, the latter being a lesion which acts as the immediate determining cause of the diphtheritic manifestation, though neither the cause nor a part of the diphtheria." "In more than one sporadic case, I have seen the *first deposit* of false membrane occur in the bronchial tubes, then in the trachea, and death take place without the larynx having been invaded." "The diagnosis between diphtheritic croup, and the various kinds of non-diphtheritic membranous sore throat, can frequently be established without any harm to the patient by applying a *very small blister* to a convenient part of the body, such as the forearm. If the disease be diphtheria, the diphtheritic pellicle will appear on the surface." "In respect to scarlatina, we must remember that at its subsidence a sore throat may set in, which is not scarlatinous, but is a real membranous—that is, a diphtheritic sore throat—a manifestation of the general disease diphtheria, to which convalescents from scarlatina are peculiarly disposed in certain localities and during epidemics of diphtheria." "Even a limited experience will teach an observant practitioner not to expect curative results in diphtheria, for particular medicines or vaunted formularies of treatment, but to strive to support life by the measures best suited

to each case, rationally using medicines as exigencies and opportunities arise, and not in a routine fashion." "In all cases of diphtheria, and in all stages of the disease—even during an apparently satisfactory convalescence—failure of the action of the heart is an ever-to-be-dreaded cause of death." Want of space forbids further quotation.

The paper which follows is entitled, "Diphtheria is a Disease: Croup is a Symptom of Laryngismus Stridulus, Laryngitis Stridulosa, Laryngo-tracheal Diphtheria, and some other affections." It deserves a careful perusal. We would direct attention to a paper on the "Paralytic Affections of Diphtheria, their Natural Course, Pathology, and Treatment," read before the section of Medicine of the British Medical Association at Norwich in 1874; and to another on the "Paralytic Affections during and after Enteric Fever." He shows that this latter is more common than is generally supposed, being overlooked during convalescence, from its being mistaken for, or marked by, general post-febrile debility. A special paper follows on the treatment of the paralytic affections, not only of diphtheria and enteric fever, but of other diseases of short duration, entitled from their severity to be called acute. In his account of the "Relapsing Fever" in 1843, as seen in the first months of the epidemic, Sir John mentioned that paralysis of the deltoid and other muscles occurred in a few cases; and it is more than probable, from the experience of later writers, that, had not his patients passed from his observation so soon after recovery, he should have seen a larger number of post-febrile paralytic affections in the Edinburgh fever of 1843. That paralysis is a sequel to cholera sometimes, is admitted, and the same is true of dysentery and smallpox, hysteria and the puerperal state. But diphtheria is followed by this formidable sequel—a more frequently than any other morbid condition. In the treatment, "so-called specifics are valueless. The system must be nourished and tonified—the plan adopted being based on rational principles, and carefully modified in accordance with signs, symptoms, and results." Cod-liver oil, Bordeaux wine, which is often at once food and physic, *iron* and *nux vomica*, and local treatment by gentle kneading of the paralyzed muscles and the moderate use of galvanism, are all mentioned with approbation.

There is a good instructive paper on "Non-venereal Discharges from the Genito-urinary Organs of both Sexes;" and another on "Scarlatinal Vaginitis, with Muco-purulent Discharge." "Congenital Syphilis" is treated in an interesting manner. A case is narrated in which it appears by logical induction, that "the mother had been contaminated by circulation in her system of the paternally-poisoned fœtal blood."

An instructive case is detailed, with great minuteness, of "Chronic Poisoning by Chloroform." The lesson to be got from it is, the therapeutic value of inversion of the body when there is syncope from cerebral anæmia. There is a suggestive letter from

Dr B. W. Richardson to the author, as a supplement to the paper. The following sentence occurs in it: "I had observed that when the butcher is killing a calf, the action of the heart of the animal is systematically maintained by him, though hæmorrhage is still going on, by the process of suspending the animal for a time with its head downwards, afterwards laying it horizontally, and again suspending it until the body is completely emptied of blood."

We have already alluded incidentally to a "Successful Resection of the Shoulder-joint in a case of Gun-shot Wound." It is a very creditable piece of surgery, accomplished under peculiar circumstances. An interesting paper follows on "Concussion of the Brain." Several cases are detailed with extreme care; and it is impossible to read them without obtaining useful instruction.

We consider the next paper, "General Paralysis, with Insanity," to be one of the best. It proves that cases are met with, which can seldom "be distinguished, except by the fact of being cured, from hopeless cases of the general paralysis of the insane. The practically important matter is to study the circumstances under which the recoveries take place, and to inquire whether nature has suggested a rational mode of cure. The following observations, suggested by cases previously narrated, are very judicious and valuable: "That it may often be possible to arrest the general paralysis of the insane in its nascent stage, seems to be a legitimate inference from two facts—*first*, that in most cases the insanity is an advanced development of a pre-existing, and often hereditary eccentricity, and that, as a rule, the insanity first shows itself as such in the opinion of the world under the influence of an existing cause or causes, among which may be mentioned political excitement, commercial anxiety, brain-fag, intemperance, marriage and sexual excesses. These are not really the essential causes of the paralysis of the insane—they are only exciting causes, which waken up an inherent morbid latent state—a state which may be the sequel of a fever or an hereditary predisposition, which, with the observance of mental and physical precautions, might possibly have remained in perpetual abeyance. Cerebral congestion, and inflammation and deterioration of brain-tissue, with insanity and paralysis—their expressions might have remained for ever dormant, and practically non-existent. This is a field in which practical physicians may achieve great successes, but unfortunately, like other fields within the domain of preventive medicine, it is one into which they are seldom allowed to enter. The false notions afloat in the public mind on the subject of insanity, by militating against its early treatment, constitute a great social evil. Families and friends conspire as it were to conceal, and, if possible, to ignore, the existence of acquired or hereditary tendencies to cerebral disease. Till public opinion cease to view insanity as an individual or family stigma, and not in its real light as a disease—often preventible in its premonitory and early stages—the state of the mental invalid

will be kept a carefully-guarded secret, till, concealment becoming impossible, he is hurried into a lunatic asylum as a certificated madman, with his brain-disease very probably advanced beyond the possibility of cure."

"In some families, cancer, consumption, gout, or insanity, 'is in the blood'—is hereditary; but these maladies do not manifest themselves merely in virtue of a blood-taint, a congenital abnormality in the constitution of the nerve-element, or a predisposition. The evolution of these diseases requires favouring circumstances and immediately exciting causes. By excluding the operation of these circumstances and causes, are not predisposed individuals often saved?"

The concluding paper, entitled "Short Attacks of Insanity in Women," will be read with much interest and satisfaction by those who have had under their professional care cases of aggravated hysteria bordering on, if not actually, insanity itself. As Dr Cormack remarks,—"The term 'mental disease' cannot be superseded; nor indeed is it objectionable; but it is well to remember that it has sometimes a misleading tendency, by seeming to imply that a disease of the mind may exist irrespective of any material morbid condition; whereas, all the psychological phenomena called insanity and delirium are dependent upon congestions and lesions of the brain, visceral diseases and disorders, or poisons in the blood."

"The principal causes of short attacks of insanity in women are —ovarian excitement from different causes, pregnancy, parturition, and delivery. In both sexes, short attacks of insanity may be caused by toxæmia, large accumulations of fæces in the intestines, the abuse of stimulants, and the transition from celibacy to married life."

The following titles will indicate the nature of two cases of great interest narrated in this article:—

"Transient Mania in a patient aged 17, in connexion with acute suppression of the Menses, and Constipation for six days."

"Mania with Erotic Manifestations from Ovarian Irritation; Hereditary Predisposition to Insanity: Recovery."

"Melancholia with Hallucinations supervening immediately after Marriage in a Case of prolonged Constipation: Recovery."

"Mad symptoms of every kind and degree—from slight giddiness to mania—seem to be produced by ovarian irritation. Physicians in the habit of examining the abdomen in cases of ovarian congestion and inflammation are familiar with the cerebral phenomena which pressure on the sensitive ovary sometimes suddenly produces. Some patients will faint, and some will vomit, and some will have an hysterical attack; others will only feel slightly giddy, or have transient dimness of vision. When the ovarian irritation is more intense, the cerebral disorder is also more intense, and may even amount to mania."

The recumbent posture seems to be very important, nay, essen-

tial, in the treatment of such cases. "The benefit arising from recumbency showed that there was a want of arterial blood in the brain. With some, and formerly with myself, that would have contraindicated bromides, from a belief that their therapeutic action depended on the causation of a condition allied to cerebral anæmia. I have now learned that the promptly calmative, and almost reason-restoring effects of a bromide, are equally conspicuous in cases in which there exists cerebral anæmia or hyperæmia. This important clinical fact is perhaps not generally recognised by physicians."

In one of the cases the bromide had considerably steadied and restored the patient's mind, before any way had been made in the principal treatment of the case by unloading the intestinal canal. "Under more or less similar circumstances, we may frequently achieve for our patients a sort of *provisional cure* by bromide of potassium, bromide of ammonium, bromide of camphor, or some other bromide, whilst we are waiting for the therapeutic opportunity to give other necessary or more important remedies."

We must now hasten to conclude what has been a self-imposed but agreeable task, only regretting that the variety of subjects handled by our author prevented a due recognition of each singly in our review. We have signally failed in our purpose, if this necessarily hurried commentary shall prevent any of our readers from perusing the "Clinical Studies" for themselves, and so having their taste whetted for a high style of professional literature.

On Certain Endemic Skin and other Diseases of India and Hot Climates generally, by TILBURY FOX, M.D., F.R.C.P., Physician to the Department for Skin Diseases in University College, Author of various Works on Skin Diseases, etc., etc.; including *Notes on Pellagra, Clou de Biskra, Cancotica, and Aleppo Evil* (with five plates), by H. VANDYKE CARTER, M.D., London, Surgeon-Major H.M.'s Indian Medical Service, etc. (Published under the sanction of the Secretary of State for India in Council.) London: J. and A. Churchill: 1876.

IN the introductory part it is stated that "The materials from which the following report has been made consisted of a great many communications, despatches, and other official papers received from various quarters of the globe. . . . Very recently, Dr Vandyke Carter was commissioned by the India Office to visit certain parts of Africa and Europe on his way out to India, with the object, chiefly, of studying the clinical history, geographical distribution, and etiology of leprosy in these parts. We had some conversation with Dr Carter before his departure concerning Pellagra, Biskra bouton, and Aleppo evil and their allies. As our report was passing through

the press, an account of Dr Carter's travels and researches on the occasion referred to reached the India Office, and that portion of Dr Carter's researches which bore upon the subjects upon which we were reporting was sent to us to be used as we might think desirable in our report. Dr Carter's communications on Biskra, Crete, and Aleppo boutons are most interesting and valuable. They are given at length in Appendices IV. and XV. We have selected several representations of these diseases from a portfolio of drawings sent home by Dr Carter, and they appear in the five plates which illustrate his report.

"The first section of this work, *i.e.*, our actual report, contains the interpretation we have put upon the facts submitted to us, as well as the results of our own observations. The report is arranged in such a way that its several parts, with the references to the Appendices, form together a series of descriptive accounts of the diseases treated of in the report, our object being to afford as complete and practical an account as possible of these maladies, based upon facts obtained over a wide area of observation." (P. viii.)

The thanks of all concerned with medicine in "India and hot climates generally," are due to those who have studied and published their observations on skin diseases peculiar to these parts, and to the compilers of this volume, as it affords an acquaintance with the endemic diseases encountered by those who are at present in practice, and those who may go thither to practise.

The amount of information condensed in the descriptions is very great. The five plates are by Dr Vandyke Carter, and are very good, as is their description.

An Elementary Treatise on Diseases of the Skin, for the Use of Students and Practitioners. By HENRY G. PIFFARD, A.M., M.D., Professor of Dermatology, University of the City of New York; Surgeon to the Charity Hospital, to the New York Dispensary for Diseases of the Skin.

THE author in his preface says, "he has endeavoured to provide for the student a guide to the study of elementary Dermatology, and to afford the practitioner assistance in the recognition and treatment of Cutaneous Diseases."

The work begins with a chapter on the Anatomy of the Skin. The next chapter is on the Physiology of the Skin. In the chapter on Diagnosis the more accurate instruments are described. Chapter six gives the various classifications, and a new one by the author, but which, with its classes and varieties, is too long to be given here.

Under his first group, or diathetic affections of the author's classification, he gives a division, *Rheumides*, the varieties of which

are eczema, psoriasis, pityriasis. At chapter ten, he says, "The Rheumides implies the existence of a constitutional condition or diathesis to which these affections may be properly referred." After glancing over the past in regard to this diathesis, he remarks, "Coming finally to America, we find a very wide-spread belief in the existence of a constitutional condition manifested by certain cutaneous eruptions, which have received the common name of *salt-rheum*. It is this diathesis, equivalent to the *dartre* of Hardy, the *herpetism* of Gigot-Suard, the *herpetis* and *arthritis* of Basin and Italian writers, and the *psora* of the ancients, for which I propose the term rheumic as a designation."

This is one more new term added to dermatology. Of the nature of this rheumic diathesis, some say that it is due to a peculiar vice of the constitution, of which they are ignorant; others that it is due to excess of urinary ingredients in the blood—this is denied by some. The author's own view harmonizes with the last of these, and says, "that the affections pertaining to this diathesis are, in all probability, due to the accumulation in the blood of an excess of certain excrementitious substances, and presumably those which are also efficient in the causation of gout and rheumatism, with perhaps the addition of a few others."

"Arsenic has been, and is still by many, perhaps most, regarded as the sheet-anchor in the management of these affections. Its reputation is based on the fact, that it has the most undoubted control over many of the manifestations of this diathesis—a control evidenced by its prompt removal, in many cases, of the visible lesions and other appreciable symptoms. But does it in addition to this exert any influence upon the constitutional conditions which underlie them? Does it in the slightest degree tend to prevent their relapse? I have never been able to perceive that it did. In my earlier experiences I used arsenic largely, and obtained the results usually ascribed to it; gradually I used it less frequently, and at present employ it but seldom, and have no hesitation in saying that the arsenical treatment of these affections, though often more prompt, is on the whole less satisfactory than the method which I have here detailed."

The method of treatment detailed by the author is what is practised by most of us, and is conducted according to the indications. As to his non-arsenical treatment of the rheumides, that may do very well in some cases, but probably not in all, even of our author's cases, as he allows that although he has largely given up the use of this drug, still he allows that he occasionally uses it; perhaps this may be cases which resist his ordinary treatment.

But surely no intelligent physician would give arsenic pure and simple, as the writer would lead us to suppose from his denouncing that metal, but would supplement it by other remedies and means, indicated by the requirements of the case in hand.

It is unfortunate for the beginner that Dr Piffard's remedies for

scabies are so few and not very cleanly; he only gives ung. sulph. with potass. iodid., and ol. cadini, with sulph. precip.; his junior readers might have had the benefit of at least other four means of treating this disagreeable disease, which are more efficacious, clean, and less irritating.

The photo-micrographs and woodcuts are very good. Altogether the book is a very good one, clearly written, and concise, and will answer well its purpose as an elementary treatise.

A Contribution to the Medical History of our West African Campaigns. By Surgeon-Major ALBERT A. GORE, M.D. London: Baillière, Tindall, and Cox: 1876.

THE medical history of campaigns, if well told, is of great present interest; and should the fortune of war carry our troops back to places whose medical history is carefully recorded, a great saving of life and money would certainly result.

Surgeon-Major Gore has performed his task carefully and well, and such a trustworthy record of medical matters connected with the Ashantee war cannot fail to prove a valuable addition to military medical literature.

The chapter on Food Supply is specially worth notice, giving, as it does, ample details regarding the kinds of preserved meats most suitable for African consumption, and the best way of preparing them. The author thus speaks of the vital necessity of feeding troops well on the march:—"The army best fed, most suitably clothed and accoutred, will have the greatest staying power, traverse the longest distances with least difficulty, encounter obstacles, and bear the vicissitudes of war with the most equanimity, lose least by sickness, approach the enemy with the best countenance and *bon courage*, and ultimately conquer even superior numbers."

As regards the moderate use of alcohol in such a damp, unwholesome climate, he says:—"Before the arrival of the European troops in December 1873, I recommended to the Quartermaster-General that a plentiful supply of port wine, preserved milk, essence of beef, and rum, should be available at all the stations, but that on no account whatever should spirit be issued during a march, but that afterwards it might be occasionally necessary and useful. Every officer with whom I conversed during the earlier or preparatory stage of the war, and since its termination, confirmed the correctness of these views, which they acted upon whenever practicable."

We extract an interesting reference to the prophylactic and remedial properties of quinine in that climate:—"My experience is against the idea that quinine will prevent the advent of fever, but quinine-wine bitters, given morning and evening, may be use-

ful as a mild stimulating tonic. The general idea among the European residents in West Africa is this—that quinine has little power as a prophylactic against fever, and that when taken *de die in diem*, it loses its power as a remedy."

On account of the bad powder used by the Ashantees, and their use of slugs instead of ball, a very large proportion of the casualties were returned as slightly wounded. The situation of the wounds was found to be most frequently in the upper two-thirds of the body, as the Ashantees fire from their hips, with the muzzle of their guns well raised.

We have said enough to show the useful character of this book.

Memoires sur la Galvano-Caustique Thermique. Par le Dr Amussat, Fils. Paris: Baillière: 1876.

There is nothing very new or original in this work. A short history of the galvanic cautery is given, interesting, though imperfect. The author then describes many operations by himself and others for the removal of pedicled tumours of the skin and the neck of the uterus. He describes various forms of trochar and canula, and of forceps, which may, under certain circumstances, prove useful in the establishment of the loop for the galvanic action. He believes himself to have been the first to amputate the neck of the uterus by the galvanic cautery for cancer, and he has had considerable success in this operation. Surgeons have now become so familiar with this application of electricity that it appears unnecessary to describe M. Amussat's mode of manipulation.

The Journal of Psychological Medicine and Mental Pathology. Edited by Dr Lyttleton S. Forbes Winslow. New Series, Vol. II., Part 2.

The most remarkable article in this number of the *Journal of Psychological Medicine* is the second, but its nature and value cannot be properly estimated without some knowledge of what led to its being written.

In October of last year, the *Journal of Mental Science* contained a critique by Dr James Crichton Browne on Skae's Classification of Mental Diseases. The admission of this paper into the Journal was a mistake, not because the criticism was thin and its style flippantly smart, but because the article was largely made up of personal abuse, which is not argument, and which contributes nothing to the clearing up of disputed scientific questions.

Dr Clouston, in the following number of the *Journal of Mental*

Science, answered Dr Browne in a temperate and earnest manner; and that he did so with ability may be inferred from the fact that his answer has called forth a paper covering 43 pages of the number of Dr Winslow's *Journal* which is now under notice.

This paper has appended to it the initials N. M., but they do not reveal its authorship to us. It is a critique entirely of the same character as that by Dr J. C. Browne—full of personalities and smart writing—and we think it should not have found a place in any scientific journal, till what is unscientific in it had been deleted.

N. M. writes in laudation of Dr J. C. Browne as directly and personally as he does in abuse of Dr Clouston. He could not, indeed, have performed his task more heartily if he had been fee'd for it.

It is not possible to enter here into a discussion of the merits of Dr Skae's classification; but there is a passage in N. M.'s critique which deserves attention. It is as follows:—"The things to be classified, be it remembered, are mental diseases—not diseases, but mental diseases. Now, what makes them mental diseases but the mental symptoms, which are therefore the major attributes? Just as in bodily diseases the major attributes are the bodily symptoms. Surely any one who classified bodily diseases by the mental symptoms—and in many diseases there are mental symptoms—would be said to classify by minor attributes, and surely, therefore, any one classifying mental diseases by the bodily symptoms may be fairly said to proceed in the same manner." (Page 208.)

From every point of view this is nonsense. No one who reads the paragraph carefully will come to any other conclusion. From one point of view, however, it is pernicious nonsense; because it implies that the mind is something which takes on diseases irrespective of the body, and that medical men may be called on to treat these diseases with such things as blue pill and black draught. Any such aspect of their professional work involves, in regard to those engaged in the treatment of insanity, a return to that charlatanry, which so long and so effectually divorced what is called *Psychological Medicine* from the other branches of the profession. Medical men know nothing of diseases of the mind. What they do know is, that there are diseases of the body, of which disordered mental states present themselves as the outcome or as symptoms. It is important to remember that a man in the delirium of typhus is as much a lunatic as is a general paralytic, and that the medical man who treats the one is as much a psychological physician as is the medical man who treats the other. It would be quackery to put the matter in any other light.

It may be convenient, but it is not scientifically correct, to speak of mental diseases. When, in speaking of such diseases, we refer merely to the disordered mental manifestations, we may properly enough have a classification founded on them, and for certain purposes this

will be useful. But it would be scientific shallowness to accept this classification of symptoms as a classification of diseases. If we cannot get closer to the root of the matter than this, it is a reproach, and we should acknowledge our ignorance, and endeavour, as Skae did, to remove it. We do not speak of sight diseases, but of diseases of the eye. Dread of light, double sight, short sight, dull sight, and blindness, are not talked of as diseases, but as symptoms and results of disease.

One other passage of this article is worth quoting. We are told in it that "in some thoroughly well-ordered asylum (*sic*) phthisis is less prevalent than in the general community from which the asylum population is drawn." (Pages 236 and 237.) With reference to this we challenge the author to name the asylums, the statistics of which would support this assertion. A psychologist like N. M., who unfolds "with scrupulous care, and a large sweep of intellect, the great *schema* that it has been his life's labour to prepare" (p. 21), should not indulge in loose statements, the verification of which is impossible.

There are some other papers of interest in this number of Dr Winslow's *Journal*. As one of these, an excellent note on Spectral Illusions, by Professor Gairdner of Glasgow, deserves special mention.

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION LVI.—MEETING I.

Wednesday, 15*th November*.—Dr Gillespie, *President*, *in the Chair*.

The *President* felt sure that the Society would feel as glad as himself that no introductory address was required at the opening of their session. He would, however, like to allude to the fact of their having changed their place of meeting. They had found the hall in which they formerly met inconvenient in some respects. It was too large for their purpose, was cold in winter, and ill-suited both for speaking in and hearing. He hoped that, by their present change, these inconveniences would be avoided, and that their meetings would have more of a family-party nature than they had latterly appeared to possess. He would not detain them further by any remarks, but at once proceed to the business of the evening.

EXHIBITION OF PATHOLOGICAL SPECIMENS.

I. *Dr James Carmichael* exhibited a TUMOUR OF THE CEREBELLUM, which he had obtained at the post-mortem examination of a patient who had died suddenly. The growth was of a calcareous nature. It was situated in the posterior fossa of the skull, and was attached to the dura mater on the left side, immediately beneath the tentorium cerebelli, in the angle between it and the descending part of the membrane. Anteriorly, the tumour was firmly bound to the membranes covering the left lobe of the cerebellum, in the posterior part of which it had produced, by pressure, a distinct hollow. The growth was irregular in shape, and somewhat nodular form, about 2 inches in length, and varied in thickness at different points from $\frac{1}{2}$ to $\frac{3}{4}$ of an inch; it was exceedingly hard and bony in texture. The interest in the case was the sudden death of the patient, who had previously been in apparent good health, and exhibited no symptoms of cerebellar or other disease. The patient had gone to bed apparently in his usual health, and died comatose about four hours after. It might, he thought, be considered probable that during sleep, he had been seized with an epileptic convulsion, from which he never rallied, but became comatose. This was, so far, conjecture, but entirely accorded with the termination of cases of epilepsy dependent on organic lesions, recorded by many observers, as Cruveilhier, Louis, Abercrombie.

II. *Mr Joseph Bell* showed an interesting specimen of LOOSE CARTILAGE, removed by him from the knee-joint. The patient was a young gentleman, whom he had seen along with Drs Menzies and Cuthbert, who suffered from severe attacks of acute synovitis in his knee-joint. He suspected a loose cartilage as the cause, but on two occasions was unable to detect any evidence of its existence; nor were there, in addition, any of the ordinary subjective symptoms. He was able, however, to feel it on one occasion, and determined to remove it by direct incision into the joint. This he accordingly did, under due antiseptic precautions, taking care to fix the loose body before the chloroform had been fully administered. The knee-joint was found to be inflamed, and to contain serum, but no pus. A drainage-tube was inserted for the first three days. The incision was healed, and the patient quite well in less than a fortnight. The motion in the joint was, of course, perfect; and, during the whole progress of the case, no rise of temperature, nor any disagreeable symptom, was experienced, although, previous to the operation, the temperature was 101°. The interesting point in the case was, the performance of the operation on a joint inflamed and on the point of suppuration. The loose body, as they would see, was somewhat peculiar in shape, and composed partly of cartilage and partly of bone.

Although dry and shrunken now, immersion in a solution of chloral would restore its former appearance.

In reply to a question from the president, Dr Carmichael gave the age of his patient, viz., 38.

III. *Mr Annandale* then read his paper on EXCISION OF THE JOINT BETWEEN THE ASTRAGALUS AND THE OS CALCIS, which will appear in a future number.

The *President* had no doubt the Society would be glad to hear any remarks on Mr Annandale's interesting case.

Mr Joseph Bell thought the Society could not allow such an interesting paper to pass without some remarks. Those of the members who were not so actively engaged in surgical matters, would doubtless be astonished at the change in pathological opinion and surgical treatment that had occurred. Had such a paper been read fifteen years ago, he felt sure that most would have been of opinion that the operation was one, difficult, unlikely to be repeated, and promising no very good result. Nowadays, however, the use of antiseptics, and such instruments as the gouge, chisel, and hammer, had changed all that. Mr Annandale struck the keynote when he spoke of "suitably selected cases." This would render results good. Many similar operations had been done on tarsal joints, but Mr Annandale had been the first to do it on this particular one. He had himself performed similar operations, such as subperiosteal resection of the os calcis, and so on, with excellent results. They required some dexterity; but no one should be an operating surgeon unless he had that. By the use of Esmarch's bandage, they could see the parts unobscured; and in the chisel and hammer they had efficient and accurate help. He did not, however, think that there would be many cases in which this operation would be feasible, as the disease would be probably more widespread. But by getting cases early, making an accurate diagnosis soon, and operating neatly, they would get good results.

The *President* agreed with Mr Annandale and Mr Bell as to the propriety of choosing suitable cases. He was of opinion, however, that cases where this joint alone was implicated, would be few. The patient whose case was described had met with an accident; but in other cases, without such a cause, the disease, though at first localized in that joint, would tend to spread. He felt sure that such a partial excision, in a scrofulous patient, would not prevent the disease extending and requiring further operative interference. The operation was an admirable one, and, in the case shown, the result was very good. The amount of motion was wonderful, and he had no doubt that in a few months the patient would be able to walk well. The case gave promise of being a most successful one.

Mr Annandale was gratified that one so thoroughly conversant with operative surgery as Mr Bell, had confirmed the originality of the operation described. The only point he disputed with Dr

Gillespie and Mr Bell was as to the frequency of similar cases. They seemed to think such cases rare; but perhaps this error arose from their not thoroughly knowing Mr Syme's opinion on this point. He would therefore quote it again:—"Caries is frequently situated in the articular surfaces of the joint between the astragalus and os calcis."[1] As he understood these words, Syme had found disease of that particular joint common. He had himself, in dissecting some of the feet amputated at the ankle by Mr Syme, found disease located in this joint alone in twenty of the cases at least. In fact, he was at the time led to hope that, in the future, some less severe operation than amputation at the ankle would be found suitable in cases where the disease was so limited. While, therefore, gratified by the kind approval of the speakers, he yet differed from them as to the frequency of this special joint affection. The operation would perhaps be performed oftener than they seemed to think.

IV. *Dr James Ritchie* then read his NOTE ON THE TREATMENT OF PITYRIASIS VERSICOLOR, which will shortly appear.

The *President* had no doubt the Society would feel indebted to Dr Ritchie for the lucid description of his method.

Dr Angus Macdonald agreed with the President that Dr Ritchie's note was an important one. The affection, though not a serious one, and one that did not even threaten life, yet was a very great annoyance to the patient. As yet, nothing had been done in the way of establishing a satisfactory treatment so far as he knew. In illustration of the risk there is in reporting *cures* of skin disease at a too early date, Dr Macdonald here mentioned a case of cure of pityriasis by means of juniper-tar oil, which had been reported prematurely by a late very eminent authority on the subject. He had never found as yet any means of eradicating this affection. But it certainly could be kept under by the diligent use of soap and water and great attention to cleanliness. If, therefore, Dr Ritchie had hit upon an easy and effective method of putting an end to this troublesome disease, he will confer a lasting benefit upon many a patient who finds it a real nuisance.

Dr P. Young had been in the habit of swabbing parasitic diseases with glacial acetic acid, and then using corrosive sublimate ointment. He had found most parasitic diseases yield to this.

Dr Andrew had, for many years, used glacial acetic acid for tinea.

The *President* asked those gentlemen who used the glacial acetic acid to state how much surface they would act on at a time, as he had always thought that glacial acetic acid was a strong escharotic.

Dr Young generally applied it to an area about the diameter of half-a-crown in size at a time.

Dr Andrew had, in some cases, swabbed the whole head with it.

Dr A. Robertson had, in certain cases, applied the glacial acetic acid to the eyelids, and had not found it too irritating even there.

[1] Syme's Observations in Clinical Surgery, page 39.

Part Fourth.

PERISCOPE.

SURGICAL THERAPEUTIC.

ANTISEPTIC SURGERY AT EDINBURGH. By G. MANOURY, Interne des Hopitaux.

Surprised to see the Lister dressing, which has been accepted for several years enthusiastically abroad, only receiving a rather contemptuous reception in France in spite of its popularization by M. Lucas-Championnière, both in his journal and in his practice, and in spite of the encouraging results obtained during this year by my teacher, M. Verneuil, as well as by MM. Guyon and Panas, and not knowing if I should attribute this indifference of my countrymen to that famous good sense of which they talk so much, or to that of which they talk less, the pious worship that we all pay here to Our Lady-of-Routine, I wished to have my mind clear about it, and one fine morning in August I strapped up my travelling-bag, and started to see what they did at the Royal Infirmary in Edinburgh. What I saw I am about to relate; but let me say at once that I have come back from Scotland a convinced partisan of the new method, and persuaded that henceforth the surgeon is, in the immense majority of cases, master of the life of those on whom he operates. I have no intention of describing at length the Lister dressing. In his excellent little book on antiseptic surgery, M. Lucas-Championnière has given the completest and clearest description possible of this dressing, so that there is no room for another. I will content myself with relating as briefly as possible the clinical facts that I have observed during my three weeks' stay in Edinburgh. Thanks to the kindness and civility showed me by all, masters and pupils, I have been able to see, in a very complete manner, the application of the new method. Many of the facts were new to me, several even seemed contrary to the generally admitted principles; but in view of the very favourable results that I have observed, and that, besides, I relate here, it seems to me very difficult not to admit that Mr Lister has just made one of the greatest progressive steps in surgery of the age. One morning's visit to the Hospital was sufficient to see how much theory guides the actions, not only of the surgeon, but also of all the pupils who follow the visit. It would not occur to any of us to open an abscess with a scalpel which had just been used in making an autopsy; it would seem quite as dangerous here to use a bistoury which has not been previously cleaned in carbolic acid; no pupil ever touches a wound without having washed his hands in an antiseptic solution, and I recollect still the scandal I made one

day by touching with my profane hand the stump of an amputated limb: a vigorous carbolic ablution was necessary to wash away my crime. When a wound is exposed, the first care is to create round it a carbolicized atmosphere, and if the sore is of such dimensions, or so situated that the carbolic vapour cannot touch it at once at all points, they either employ two pulverizers, or cover with a carbolicized linen cloth the points which the pulverizer cannot reach—in short, there are a crowd of details which it would be fastidious to enumerate, and of which it is impossible to dream, if one's hand is not guided by theory. These small details, which may seem a little trifling at the beginning, have now so thoroughly passed into practice, that the students execute them quite naturally, and without being at all constrained by them. . . . .

The Royal Infirmary of Edinburgh is a large hospital, situated in the Old Town; in a dirty and ill-aired quarter, where the atmosphere is vitiated by smoke, and by the fumes of the neighbouring breweries; there is here and there a narrow court, but no large garden; in short, one may say that, from the hygienic point of view, the site of the hospital is far from being better than that of our Parisian hospitals. The wards are small; they contain each from eight to ten beds; I did not take exact measurements, but it seems to me that the patients have nearly the same quantity of cubic feet of air as with us. M. Manoury then describes the arrangement of the wards, dressings, etc.:—

I have never smelt the least odour in these wards. The operating theatre resembles completely most of our Parisian ones. Upon one table are laid out the carbolic solution, and the sponges, with basins and pails; an assistant is specially charged with this table, washes the dirty sponges, puts fresh water in the basins—in short, has charge of washing and disinfection. Upon another table are the instruments, which, instead of being laid out on a board, are arranged in the bottom of a large square china cistern; this cistern is half filled with carbolic solution, so that all the instruments are completely immersed in the solution; they can thus be very easily taken out and replaced in the cistern when they have been used. Upon this same table is also, in a flask of carbolic oil, some catgut thread, not in a skein—which one would be obliged to take out to cut it—but rolled on a bobbin, so that it can be divided when desired without being taken out of its antiseptic liquid. Lastly, upon a third table the patient is laid. There is no one in the semicircle but the surgeon and his assistants. All the students are seated on the benches of the theatre. In this way the surgeon is free in his movements, and his assistants are not obliged to struggle constantly with a crowd pressed against the operating bed; the instruments can be taken out and put back when necessary in the carbolic solution; they do not run the risk of being crushed by any too zealous student who, to see better, should mount on the table; lastly, the sponges are given straight to the surgeon without passing

first through five or six hands. I speak of all these little details, for I believe that they are of great value. After describing the dressings, he goes on :—I must now give an account of the different cases in which I have seen the Lister dressing applied. I will speak first of those small wounds which are the small change of surgical practice. When the patient can walk he is not taken into the hospital; they put a dressing on him, and every morning he comes to be dressed at the consultation. I saw there crushed fingers, sore arms, autoplasty of the face, sores in the chest not penetrating, etc.; in all these cases one may say that immediate healing was the rule. It is useless to speak of all these small facts, but I must nevertheless quote one of them in which a contrary treatment was employed to that generally followed in Paris.

10*th August.*—A young girl received on her head a blow from a poker which made a scalp wound from four to five inches long; she came immediately to the Infirmary to the consultation of Mr Joseph Bell; a suture was made with catgut threads, and the Lister dressing applied; on 17th August the wound was completely healed at the first intention.

Immediate healing has also been the rule for the different operations practised upon healthy tissues that I have had the opportunity of observing.

1. On 14th August Mr Chiene removed a bulky tumour from the right parotis of an old man; he employed in this case a bundle of catgut threads instead of drainage-tubes, and he made the sutures with the catgut dipped in chromic acid. The following days there was no trace of swelling nor of redness; the temperature never exceeded 37°·6, the sore was healed by the first intention, five days after the operation; and on 26th August—that is to say, twelve days after the operation—the patient left the hospital.

2. Amputation of the thigh, done by Lister sixteen days ago; catgut was used in this case also instead of drains, healing by first intention in every part. From the day of operation the temperature has varied from 37° to 37°·04, and the pulse from 78 to 100.

3. 16*th August.*—Mr Joseph Bell has performed an amputation on the upper part of the leg of an old woman for an epithelioma of the leg. Two drainage tubes, one of the ends of which is fixed at the bottom of the wound by a catgut thread, which crosses the base of the flaps; suture of the two edges with the catgut. Lister dressing. 17*th and* 18*th August.*—Rather abundant flow of a chocolate-coloured liquid into the dressing; stump slightly swelled; carbolic injection by the drains. 20*th August.*—All trace of swelling, even slight, has disappeared; there is not the least trace of inflammation. 22*d August.*—The drains are taken away. 28*th August.*—The wound is completely healed by the first intention, except at the level of the two parts from which the drains were taken out. From the day of the operation the temperature has varied from

36°·8 to 37°·4, the third and fourth days only it rose to 37°·8 and 38°·2. . . . .

This observation leads me naturally to speak of compound fractures: it seemed to me that there was one of the happiest applications of the antiseptic dressing. We know the deplorable statistics of compound fractures in our hospitals; the new mode of dressing completely changes the figures. In the treatment of these fractures, it is easy to combine the Lister dressing with a fracture bandage, all the more that we have in France our excellent apparatus of plastered tarlatan, that will allow us to make the limb perfectly motionless in laying bare the seat of the wound. It will be necessary, besides, to take great care in these cases to carbolicize the wound well, above all if the accident dates from some hours back, for the atmospheric germs have had time to introduce themselves into the wound, which is, in general, deep and winding. In case the wound is some hours old, Mr Lister sometimes uses a solution, composed of one part carbolic acid and five parts methylated spirit, to touch all the unevennesses of the sore, and to wash the protruding fragments of bone before reducing them.

A boy, six years old, came into Joseph Bell's ward on 22d July for a compound fracture of the left tibia, with a skin wound nearly two inches long. Lister dressing. By 9th August the dressing was only applied every third day; the wound had the appearance of a simple wound, hardly suppurated, and had no smell. On 20th August the dressing on the wound had been quite dry for eight days, without smell; the wound was almost completely cicatrized.

Up till now we have only discussed wounds affecting tissues originally healthy, but the antiseptic dressing may also be applied to quite different cases. I have seen it employed in several cases of cold abscesses; it seemed to me that the opening of these abscesses in these circumstances lost much of its gravity, and that, in applying rigorously the antiseptic method, there would, perhaps, be advantage in opening soon abscesses from congestion in Pott's disease, and in coxalgia, instead of waiting till they have given rise to a considerable number. In the various cases that I have observed, I have never seen any symptom of hectic fever, and, besides, the suppuration was almost nothing. I can quote, in this respect, the case of a man having an enormous cold abscess in the lumbar region, into which Mr Joseph Bell passed a drain in the beginning of August, and upon which he applied afterwards the antiseptic dressing. On 9th August I saw the patient; there was no trace of swelling nor of redness, the dressing contained only a few drops of pus, and had not the least smell. On 20th August the suppuration was, so to speak, nothing; the dressing was left unlifted for several days. The same treatment can be applied to suppurative arthritis; and, in the two cases that I have seen thus treated, the general symptoms, which were serious at the time of the patient's entrance into the hospital, rapidly amended after the opening of the diseased

joint. In these cases, as in the case of abscess from congestion, the use of the antiseptic dressing modifies singularly the seriousness of the prognostic, and the opening of a suppurating joint is no longer much to be feared.

On 8th August a young girl of fifteen entered Mr Chiene's ward with a suppurating knee-joint. The knee was hot, red, stretched, extremely painful; the condition intensely feverish. The joint was opened, and a drain passed into it. A large quantity of foul liquid pus flowed away. The following days the swelling and the pains diminished, the fever abated, and the general condition became very satisfactory.

He describes also a similar case by Mr Annandale.

In the short *résumé* that I have just made, I have spoken of absolutely all the principal cases in which I saw the Lister dressing used; I cannot, therefore, be accused of choosing and presenting only the favourable facts. Several of these cases are generally regarded as very serious, and yet not only has no patient died, but with none has shivering supervened, and the general condition has never been alarming for a moment. Seeing such results, I have returned convinced that the surgeon who will really surround himself with all necessary precautions, is master of purulent infection. It is evident that, if one makes trial of the new method with the tips of one's fingers, and with an *arrière pensée* of scepticism, one will omit many details, and the assistants will not, perhaps, always have the caution to take those thousand trifling cares of which they cannot be reminded every time; but, if one accepts the theory completely, and conforms to it rigorously in his manner of working, it will not be long before one has to record its success.—*Abridged from Progrès Medical for* 1876, Nos. 42, 43.

MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By W. Handsel Griffiths, Ph.D., L.R.C.P. Ed., Licentiate of the Royal College of Surgeons of Edinburgh; Lecturer on Medical Chemistry in the Ledwich School of Medicine, Dublin; Corresponding Member of the Therapeutical Society of Paris; Honorary Member of the Ontario and Chicago Colleges of Pharmacy, etc.; Librarian to the Royal College of Surgeons in Ireland.

[The author of these Reports will be glad to receive any books, pamphlets, or papers relating to Materia Medica or Therapeutics. They may be forwarded through the agencies of the *Edinburgh Medical Journal.*]

Belladonna in Enteric Fever.—Dr Harley states that, in moderate and oft-repeated doses, belladonna exercises a hypnotic and sedative action on the brain and spinal cord respectively, and a powerful stimulant action on the sympathetic nervous system, as evidenced by its effects in dilating the pupils and exciting the heart. He affirms that the action of belladonna on the body is the same whether it be given alone or in combination with opium, but that in the latter case it is somewhat intensified. If we observe the small

arteries and capillaries during the operation of moderate doses of belladonna, we shall find that they are maintained for hours in a tonic and contracted condition. Excessive doses produce exhaustion, dilatation of the minute vessels and stasis of the blood being the result. Dr Harley finds that ♏xv. of the succus (B. P.) given every four or six hours is quite sufficient to sustain that moderate atropism which is beneficial. When delirium has been present, he has never found this dose increase it, but rather the reverse. In enteric as in scarlet fever, severe congestion of the kidneys, and attendant albuminuria, are not uncommon events. For the prevention or relief of this condition belladonna is the appropriate remedy, for the whole of the atropia admitted into the body is eliminated unchanged by the kidneys. If, therefore, the quantity of atropia be not excessive, it follows that an active circulation is maintained in these organs during the time they are engaged in its elimination.

An analysis of the cases recorded by Dr Harley shows the following results:—1. As to the pyrexia. It appears that the rate of the pulse and the degree of temperature were never, as a rule, increased, but, on the contrary, both these symptoms uniformly declined under the use of belladonna. The daily averages of the pulse above given are, considering the severity of the cases, certainly low. Dr Harley thinks that the stimulant action of belladonna on the heart is converted, in the pyrexial state, into a tonic, and, if not pushed too far, even a sedative influence on the heart and bloodvessels generally; in other words, that it is a tonic and sedative to the sympathetic nervous system generally. By this action the capillary circulation is accelerated, the contraction of the vessels promoted, and thus the arterial tension which attends congestion of the parenchymatous organs is relieved, and a load at once removed from the heart. Diminution of temperature is the direct consequence of these changes. As the result of the prolonged use of belladonna after the cessation of the pyrexial state, Dr Harley noted an irritable debility of the heart, as if it had been exhausted by over-stimulation, and the nervous system had also shown a participation in this effect. The beneficial use of belladonna, therefore, lies within narrow limits as to dosage, and vigilance must be exercised lest these limits be exceeded. As to delirium, Dr Harley has observed that, except in a very small proportion of cases, this symptom in enteric fever is not increased by belladonna, and he has never withheld the drug on account of delirium. Speaking generally, the effect of the belladonna was to diminish the insomnia so frequently present. One of the most noticeable effects of belladonna in the pyrexial condition is moistening of the tongue. No particular effect on the skin was noted. As far as could be determined, the diarrhœa was not directly influenced either way, but in those cases in which the belladonna was given from an early stage of the disease, it appeared to be of shorter duration. The

tendency to hæmorrhage appeared to be in like manner uninfluenced. Dr Harley considers that the liver was restored to a healthy action at an earlier date in the belladonna cases than in those treated by ordinary remedies. Dr Harley has adduced sufficient evidence to show that the use of belladonna in enteric fever has been so far attended with good results.—*St Thomas's Hospital Reports*, vol. vi.

Antagonism between Morphia and Atropia.—The following are the conclusions arrived at by Dr Corona from his experiments:—

(*a.*) Atropia quickens respiration; morphia retards and modifies it.

(*b.*) Atropia produces convulsions but never sleep in dogs and rabbits; morphia produces sleep and deep coma.

(*c.*) Atropia slows the heart's action; morphia quickens the movements of the heart.

(*d.*) While the heart's action is being diminished by atropia, the temperature remains stationary or is slightly increased; during the acceleration of the heart's action by morphia the temperature falls.

(*e.*) Dilatation of the pupil is the most marked symptom produced by atropia; with morphia the pupil may be dilated, stationary, or contracted. When atropia is injected in large dose into the circulation dilatation does not occur, because both the circular and radiating fibres of the iris are paralyzed.

(*f.*) Atropia always produces vaso-motor paralysis; morphia never does so.

(*g.*) Atropia depresses reflex action, and always produces paralysis of the posterior part of the body in animals; morphia either leaves reflex action intact or sometimes exalts it.

(*h.*) On *post-mortem* examination the lungs, liver, and system were normal after poisoning with atropia and morphia. The heart and large vessels were always full of blood, but it was coagulated in poisoning by morphia, fluid and blackish in poisoning by atropia. The meninges were in both cases always congested, while the brain substance was constantly anæmic. The medulla oblongata and tubercula quadrigemina were never hyperæmic, while their meningeal covering was always so.

(*i.*) As regards the toxic dose there was very great variation both in regard to the age and race of the animal. The toxic dose of morphia was much less in dogs than in rabbits. Atropia was tolerated in large doses; it never proved fatal in rabbits in less than 50 centigrammes, except in young and very small animals.

Dr Corona makes the following remarks on the alleged antagonism of atropia and morphia:—

Morphia, in small doses, removes the symptoms produced by atropia, and produces sleep. During morphia sleep, atropia, even in very large doses, does not alter the symptoms due to morphia, nor does it affect the sleep. When atropia was injected in small

doses, at intervals of ten minutes, although the total quantity was large, its action was more rapidly extinguished by small doses of morphia than when atropia was injected in a dose of not less than 20 centigrammes. The injection of the two poisons into the veins showed that a much smaller dose was sufficient to produce rapid and grave poisoning; but even then the morphia produced its action instantaneously, and its symptoms always superseded those of atropia. The injection into the veins of large doses of atropia and very small doses of morphia was always followed by sleep, and the manifestation of the symptoms due to atropia were tardy. In all cases, after the disappearance of the symptoms due to morphia, those due to atropia appeared in intensity proportionate to the largeness of the dose administered for the purpose of counteracting the symptoms due to morphia. Dr Corona concludes from these results that a partial physiological antagonism between atropia and morphia may be recognised, but that the theory of a mutual therapeutic antagonism cannot be accepted. Morphia is available as an antidote in poisoning by atropia, but poisoning by the former drug may not be combated by the latter.—*Giornale di Medicina Militaire*, April and May.

In the *American Journal of Medical Sciences* for July is a brief but important paper by Dr Charles A. Oliver, on the efficacy of the physiological antagonism of opium and belladonna in the treatment of poisoning, as shown by an analysis of 370 cases. In the cases of opium-poisoning, the evidence adduced is in favour of the belladonna treatment, and in belladonna-poisoning the opium treatment yielded more favourable results than any other. The indications for the exhibition of belladonna in opium-poisoning are decreasing respiration and a tendency to profound stupor. The belladonna should be administered hypodermically in the form of small physiological doses of atropia frequently repeated. In belladonna-poisoning the opium seems to be useful in thwarting the effects of over-stimulation (paralysis of heart and lungs).

Hedler records a case of a child a year and a half old, who drank a solution containing about ·03 grammes of sulphate of atropia. Two subcutaneous injections of ·005 grammes of morphia yielded brilliant results; the child fell into a sleep, lasting till morning, and although for two days there were slight evidences of poisoning by atropine, these gradually passed away. The morphia left no bad results. The pupils, during the whole period, were only dilated to one half—a circumstance bearing out the observation that, in very young children, a full dilatation of the pupil cannot be obtained by atropia.—*Centralblatt*, No. 12, 1876.

Enemata of Atropine in Cystitis.—Dr Semple states that he has treated many cases of cystitis with success, by administering in enemata from 40 to 60 minims of a solution of sulphate of atropia (one grain to eight ounces of water), to which is added

sufficient carbolic acid to prevent the formation of organic matter and the deposit of the atropia. The dose is added to half an ounce of water, and administered twice in the twenty-four hours. It uniformly and immediately arrests the frequent strangury and painful micturition, gradually checks the mucous and sanguineous discharges, and relieves the suprapubic pain, with the cystic inflammation. When the urine is alkaline, Mettauer's nitro-muriatic acid is given to correct it; and when it is so acid as to irritate, the bicarbonate of potash, or subnitrate of bismuth, may be given. When constipation is present, which is frequently the case, it should be met by aperients.—*New York Medical Journal*, September, from *Virginia Medical Monthly* for June.

Caffein.—J. Perretti confirms the observation of Binz that caffein causes a considerable increase of temperature for a short time. During the increase the animal is in a state of muscular tension, and Perretti thinks that a direct excitation of the spinal cord and the increased innervation of the motor apparatus dependent thereon cause the great production of heat. The pulse is increased, saliva is profusely secreted, the sensorium is excited, the respiration is rapid, and is paralyzed by fatal doses. He found with Uspensky that artificial respiration can avert death, and spasms arising from poisoning with caffein, as a rule, do not take place when artificial respiration is kept up. When the dose is so large that paralysis of the respiratory centre is induced, the rise of temperature does not take place, and rigor mortis does not occur. Alcohol is a valuable agent in poisoning with caffein, but if given in too large a dose, its effects are united to those of the caffein.—*Centralblatt für die Med. Wiss.*, No. 52.

Monobromide of Camphor.—In a recent pamphlet Dr Pathault records his experience of the action and use of monobromide of camphor. He finds that it is eliminated in the urine. It lessens the frequency of the pulse and the number of the respirations, and causes depression of temperature. It appears to be an energetic nervous sedative and an antispasmodic. Certain difficulties and objections attend its continued use. It is not adapted for hypodermic injections. In the treatment of delirium tremens and in insomnia, Dr Pathault found partial benefit from its use; in chorea it yielded more successful results; in hysteria also, its administration was beneficial, and in epilepsy it reduced the fits in number, and relieved the vertigo. In dyspnœa he obtained partial success with it, and in neuralgia its effects were doubtful.

Bromide of Cadmium.—In a recent number of the *Boston Medical and Surgical Journal*, a case is recorded in which bromide of cadmium was taken in mistake for bromide of ammonium. The following were the symptoms:—Pungent taste and sensation in the mouth and throat, prolonged vomiting and purging, with great pain and a burning feeling in the œsophagus and stomach. The vomit-

ing and purging lasted five hours, and during part of that time the pulse was imperceptible in both the patients who had taken the salt. After a time the symptoms subsided. The exact quantity taken is not known, but the dose of bromide of ammonium ordered was eight grains.

Bromide of Iron.—In the treatment of twelve cases of chorea, and in a few cases of hysteria and epilepsy, Dr Charles K. Mills has unsuccessfully employed the bromide of iron, although the salt was administered in accordance with the recommendations of Professor Da Costa.—*New Remedies*, January 1876.

Bromide of Lithium.—According to M. Roubaud, bromide of lithium possesses in a high degree the lithotriptic properties attributed to the salts of lithia, and affects reflex sensibility very powerfully. It does not exert the inconvenient action on the heart which bromide of potassium does. It is particularly valuable in the treatment of uric acid diathesis accompanied by painful symptoms, and in neuroses which are so often complicated by the presence of uric acid.—*New Rem.*, May, quoted from *Bull. Gen. de Thér.*

Bromide of Potassium.—In a paper read before the French Association for the Advancement of Science, M. Peyraud of Libourne attributes escharotic properties to bromide of potassium. In twenty-eight days he destroyed, by daily applications of this salt, a cancroid fungus mass, and M. Besnier cured a hypertrophic lichen of the leg by the same means. M. Peyraud uses injections into the tumour, or applies the salt to a raw surface. The action of the salt is resisted completely by the tegument. He obtains excellent results in the treatment of atonic ulcers by powdering the raw surface with the bromide of potassium. In many skin affections he has derived benefit from the use of the salt, and as a local and general hæmostatic, the success obtained with it was very marked.

Dr Martin F. Coomes writes that bromide of potassium, in substance or solution, applied to living muscular tissue, produces paralysis, and the results are the same when it is applied to a nerve-trunk, or injected into an artery. Applied to a mucous surface it is a local anæsthetic, although this effect is secondary, unless used in a weak solution, say 10 or 15 grains to an ounce of water. Its action, when applied to a mucous surface in substance or saturated solution, resembles that of a caustic, but its effects are not visible; it does not whiten the tissues. Its application is attended with pain, which, however, never lasts more than a few seconds; the larynx and fauces are more tolerant of its action than the eye or nose. Applied to congested mucous surfaces, it disgorges the distended vessels, and increases the secretive action of the mucous follicles.—*Canada Medical Record*, June.

Part Fifth.

MEDICAL NEWS.

OBITUARY.

Lady Bell.—We feel that the death of this much-esteemed and venerable lady must not pass unnoticed in our pages. The event took place at her residence in London, on the 9th of November. She was in her ninetieth year, and had survived her husband, the late Sir Charles Bell, by more than the third part of a century. Remarkable for her beauty, grace, and accomplishments, with a genial disposition, she contributed very notably to the domestic comfort and happiness of her distinguished companion in life, cheering him under difficulties by her sunny presence, and ever taking a warm and intelligent interest in all his studies and pursuits. Her spontaneous and considerate gift very recently to the Edinburgh College of Surgeons, of an excellent marble bust of Sir Charles, a *replica* of that in the Hunterian Museum, indicated her abiding sense of his merits, and her loyal devotion to his memory. The Edinburgh School has good reason to claim the greatest physiologist of this century as in many respects her own. Let as take this opportunity of reminding our readers, in these days when vivisection is in every mouth, that Charles Bell, while on several occasions he had recourse to it with valuable results, invariably employed such operations with extreme reluctance, and as *experimenta crucis* to decide points previously well reasoned out and rendered more than probable by anatomical facts and clinical observation. This may be seen both in his work on the nervous system, and in that fascinating book, his correspondence with his brother, during his residence of thirty years in London.

CORRESPONDENCE.

To the Editor of the Edinburgh Medical Journal.

MEDICO-CHIRURGICAL SOCIETY—DISCUSSION ON MR ANNANDALE'S PAPER ON EXCISION OF THE JOINT BETWEEN THE ASTRAGALUS AND OS CALCIS.

10 Walker Street, 20*th November* 1876.

Sir,—It is not customary to renew the debate after the reader of a paper has wound up the discussion, or I would have liked to say a few words in reply to what fell from Mr Annandale; and as his observations will appear unchallenged in your report of the proceedings, I beg you will accord me the privilege of making the following remarks:—

Mr Annandale said—"The only point he disputed with Dr Gillespie and Mr Bell was as to the frequency of similar cases. They seemed to think such cases rare; but perhaps this *error* arose from their not thoroughly knowing Mr Syme's opinion on this point. He would therefore quote it again—'Caries is frequently situated in the articular surfaces of the joint between the astragalus and os calcis.'"

Of course I admit that to be true, but the question is, does it exist often there as the only lesion? Having been Mr Syme's colleague at the Royal Infirmary for upwards of twenty-one years, and previously his house-surgeon and non-resident clerk for upwards of two years, at a time when he was bringing prominently into notice his admirable operation of amputation at the ankle-joint, I assisted him at, or have seen him perform, very many of these operations, and I therefore cannot admit that I spoke in *error* when I said advisedly that I thought the operation described by Mr Annandale would very rarely be called for. In very very few cases indeed, during that long period of time, was the disease found to be so limited as to exist only between the astragalus and os calcis; and my own extensive clinical experience during my twenty-one years' hospital service fully corroborates me in repeating what I said at the Society, that the cases suitable for Mr Annandale's operation will almost entirely be found where direct injury has caused a limited amount of caries in the calcaneo-astragaloid joint. Mr Syme has published the notes of twelve cases of amputation at the ankle-joint. In not one of these is the disease requiring amputation, limited to the situation alluded to by Mr Annandale. JAMES D. GILLESPIE.

To the Editor of the Edinburgh Medical Journal.

TREATMENT OF ERYSIPELAS BY THE MURIATED TINCTURE OF IRON.

SIR,—In the August number of the *Edinburgh Medical Journal*, there appears a communication from Dr Charles Bell of Edinburgh, on the Treatment of Erysipelas by the Muriated Tincture of Iron, and I now desire to examine some of the statements expressed in that paper. He states that he has "paid particular attention to the subject of erysipelas;" that he laid before the profession the special treatment by iron, which was first practised by his brother George Hamilton Bell, and he refers in most disparaging terms to the treatment of the disease recommended by the eminent surgeon Professor Spence, in his recently published work on Surgery. Dr Bell also claims to have discovered the true pathology of erysipelas,—namely, that "it is the effect of blood-poisoning from *improper diet* and exposure to *impure air*." At the same time, he states that "although in some instances it is apparently the consequence of infection, it may in

reality be produced by those affected being exposed to the same vitiated source." He also asserts that the disease has a peculiar idiosyncrasy for certain individuals, and also that it has the power of remaining dormant in the system, and may appear afterwards through some source of irritation. He then relates some cases reported by the late Dr Begbie, senior, which seem to confirm these views, and he also contrasts some cases of diphtheria and scarlatina observed by himself. Farther on in the paper, he asserts that there is a marked therapeutic difference in the action of the tincture of the perchloride of iron and the tincture of the muriate of iron, which he says he has fully tested, and produces two cases to corroborate his views. He has such complete faith in the efficacy of the muriated tincture of iron that "when it has failed, the fault has not been in the remedy, but in the mode of administering it." I shall first endeavour to prove that erysipelas is *not* the result in *all* cases of "blood-poisoning from *improper diet* and *exposure to impure air.*" Such a statement is a most erroneous one, and had Dr Charles Bell studied the subject more fully than he has apparently done, he would never, I am certain, have expressed such a dogmatic opinion.

Without a sufficient acquaintance with the pathology of this disease, any treatment of it will degenerate into mere empiricism, and most practitioners of medicine, who have had to deal with it in its numerous forms, would ridicule as preposterous the idea that we had a *specific* for it in iron, as quinine is undoubtedly in ague.

In the "Text-Book of Practical Medicine,"[1] by the late lamented Professor Dr Felix Von Niemeyer, there is a most excellent description of the disease and its treatment. Adopting the pathology of the disease enunciated by Professor Billroth, he considers it to be proved "that most forms of erysipelatous dermatitis" spring from the inflamed wall of a lymphatic vessel, and by the process of extension implicate the neighbouring tissues of the cuticle. What then may be the starting-point of the mischief? Niemeyer enumerates two special causes at least. 1st, Inoculation of some "acrid or venomous material." In this case the inflammation of the skin is secondary to inflammation of the walls of the lymphatic vessels. 2d, The absorption "of the ichorous secretion of a wound," and sometimes of the contents of an abscess, by the lymphatic vessels. He allows, however, that there is a form of the disease, which apparently arises "without assignable cause," but he declines to entertain the idea that the disease may arise from *local irritation,* cold, *errors of diet*, etc. (The italics are my own.) He also states that as it is apt to reappear in the same individual and is not an infectious disease, there is therefore no analogy between it and such diseases as scarlet-fever, measles, etc. It is somewhat similar, however, to pneumonia and other inflammations by reason

[1] Edition translated into English by Drs Humphreys and Charles E. Hackley.

of the liability of the individual to have recurring attacks of the disease. I think I have proved by the above, that Dr Bell's theory of the causation of the disease is not the correct one. Other authorities might be cited to contradict his one-sided views, but I consider that Niemeyer has satisfactorily given the true pathology, and there is little to add to his enumeration of the causes of the production of erysipelas. Any rational treatment of the disease under consideration must be so carried out as to bear upon its true cause or causes. By merely acting on the principle advocated by Dr Charles Bell would, in many cases, prove absolutely injurious to the patient. In regard to another statement in the paper, that the muriated tincture of iron is the only proper remedy for the disease, it must first be experimentally and clinically proved by careful observation, that iron when *internally* administered is capable of controlling and shortening the inflammatory process, which most undoubtedly is a leading symptom in erysipelas. During convalescence, it may be imperatively necessary to prescribe it in order to recoup the system, but beyond this I deny that, in the present state of our knowledge regarding this drug, it can have the virtues ascribed to it by Dr Bell.

In aconite we have, most certainly, a much more reliable drug for the treatment of erysipelas, and it fulfils the indications for treatment of the disease, controlling, in a marked manner, the inflammation, and decreasing in a wonderful way the high temperature. The clinical thermometer shows how decidedly we may depend upon aconite. If Dr Bell has not tried this latter drug, I would urgently advise him to do so in his next case of erysipelas or even scarlatina, and he will be surprised at the results.

Professor Sydney Ringer, in his "Handbook of Therapeutics," strongly advocates the administration of aconite in erysipelas and other forms of inflammatory disease; and from my own observation of the effects of this drug, I can most heartily coincide with his recommendation. Professor Garrod, on the other hand, does not appear to be favourable to the employment of the drug, on account of its dangerous properties. He also avers that its effects are merely temporary,—a statement which is utterly opposed to truth.

With *small* doses, which are as fully effective as large ones, and with careful watching of the pulse, there need be little fear of its proving hurtful, whilst it has a decided action in lowering the excessive temperature.

In conclusion, it is as well to bear in mind that, as medical science is not yet perfect, we must not expect a mere "fixed treatment" to suit all forms of the disease; but, as time advances, mines of wealth, regarding pathology and the exact action of drugs, may be laid open to benefit the human race.

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